

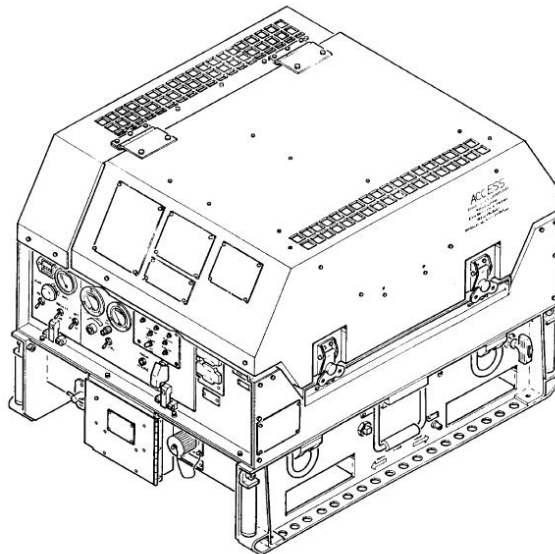
**ARMY
AIR FORCE
MARINE CORPS**

***TM 9-6115-639-13&P
35C2-3-386-51W/IPB
TM 10155A-13/1B**

TECHNICAL MANUAL

OPERATOR AND FIELD MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST FOR

3 KW TACTICAL QUIET GENERATOR SET MEP-831A (NSN 6115-01-285-3012) (EIC VG6) MEP-832A (NSN 6115-01-287-2431) (EIC VN7)



* **SUPERSEDEURE NOTICE** - TM 9-6115-639-13&P, TO 35C2-3-386-51W/IPB, AND TM 10155A-13/1B, supersedes TM 9-6115-639-13&P dated 30 April 2010, including all changes. Date of issue for the revised manual is: 31 August 2017.

DISTRIBUTION STATEMENT C. Distribution authorized to U.S. Government agencies and their contractors for administrative or operational use, as determined on 1 August 2015. Other requests for this document shall be referred to Commander, U.S. Army Communications- Electronics Command, 6001 Combat Drive, ATTN: AMSEL-LCL-ECM, Aberdeen Proving Ground, MD 21005-1846.

WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, et. seq.) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., App. 2401 et. seq. Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DoD Directive 5230.25."

DESTRUCTION NOTICE - Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

**HEADQUARTERS, DEPARTMENT OF
THE ARMY AND THE AIR FORCE AND
HEADQUARTERS, U.S. MARINE CORPS
31 AUGUST 2017**

PCN 182 101550 00

WARNING SUMMARY

FIRST AID

For Artificial Respiration, Refer to TC 4-01-1.



5

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1

DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2

IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3

IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL

4

SEND FOR HELP AS SOON AS POSSIBLE

5

AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING AND CAUTION STATEMENTS

This section provides a summary of all critical safety information in this manual. It includes a list of all WARNINGS in work package procedures. Warnings on the same subject are grouped by topic. Only those WARNINGS that pertain to a specific maintenance procedure will be listed under each WARNING heading in a work package.

WARNING SUMMARY – CONTINUED

Prior to starting any work package procedure, all WARNINGS included in the initial setup and text for that work package must be reviewed, understood and followed. Review to the MATERIALS/PARTS in the INITIAL SETUP of the work package for any hazardous materials used during maintenance of the equipment. Then, refer to the detailed WARNINGS for hazardous materials.

Operation and maintenance of the generator set contains many possibilities for injury or death to personnel. Be sure to be familiar with general first aid procedures as referenced in TC 4-01-1, First Aid.

GENERAL HAZARDOUS MATERIALS WARNINGS

Hazardous materials are not to be used by the operator in the operation and maintenance of the generator set.

Engine exhaust fumes contain deadly poisonous gases.

Severe exposure can cause death of permanent brain damage.

Exhaust gases are most dangerous in places with poor airflow. The best defense against exhaust gas poisoning is very good air flow.

To protect yourself and others, always obey the following rules:

- Do not run engine indoors unless you have very good airflow.
- Do not idle engine for a long time unless there is a very good airflow.
- Be alert at all times. Check for smell of exhaust fumes.
- Reminder: The best defense against exhaust gas poisoning is very good air flow.

Exhaust gas poisoning causes dizziness, headache, loss of muscle control, sleepiness, coma, and death. If anyone shows signs of exhaust gas poisoning, get all personnel clear of the generator set. Make sure they have lots of fresh air. Keep them warm, calm, and inactive. Get medical help. If anyone stops breathing, give artificial respiration.

GENERAL ELECTRICAL SAFETY WARNINGS

Energized troubleshooting and work is authorized for this equipment by qualified personnel, in accordance with the conditions and instructions contained in this technical manual below::

- Limited Approach Boundary: 1.0 m (3 ft. 6 in.) Unqualified personnel are not permitted within 1.0 m (3 ft. 6 in.) of the equipment when energized parts are exposed.
- Restricted Approach Boundary: Avoid contact. Personal contact with energized parts is not permitted.
- Arc flash boundary: There is no arc flash hazard for this equipment when following the authorized maintenance procedures.
- Job briefing: Personnel must review and understand each work package with attention to the precautions and hazards involved. Work within the limited approach boundary involves energized parts at 240 VAC and 28 VDC with high current sources.
- Multiple DC power sources for this equipment are present, batteries and external supply (NATO slave connector).
- Personal Protective Equipment (PPE): Safety glasses are required during work where energized parts are exposed. Conductive jewelry (rings, watches, necklaces, etc.) must be removed before energized work is conducted on this equipment.

WARNING

Do not replace components or make adjustments with the voltage supply turned on. Dangerous potentials may exist under certain conditions when the power control is off. Avoid casualties by always removing power and by discharging and grounding a circuit before touching it. Failure to observe this warning could result in severe personal injury or death.

WARNING SUMMARY – CONTINUED

WARNING

High voltage is produced when generator set is being operated. Use care when working around an open control panel when generator set is on. Improper operation of generator set or failure to follow this warning could result in severe personal injury or death by electrocution.

WARNING

High voltage is produced when generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Do not ground yourself in standing water. Never attempt to connect or disconnect load cables while the generator set is running. Failure to comply may cause injury or death to personnel.

WARNING

DC voltages are present at generator set electrical components even with the generator set shut down. Avoid shorting any positive terminal with ground or negative. If no DC voltage is required, always disconnect DC power source to the generator set before working on it. Failure to observe this warning could result in severe personal injury or death by electrocution.

WARNING

Never attempt to connect or disconnect load cables while generator set is running. Failure to observe this warning could result in severe personal injury or death by electrocution.

WARNING

Never service or perform maintenance on generator set while engine is running. Always shut down generator set before servicing. Allow engine to cool before handling components. Failure to observe this warning could result in severe personal injury or death.

WARNING

Never work alone when reaching into generator set to service or adjust it. Be sure to work with someone who could provide aid in case of an emergency. Failure to observe this warning could result in severe personal injury or death.

WARNING

Shut down generator set at first sign of failure. Continued operation could result in injury to personnel and will cause damage to equipment. If generator set is shut down by activation of a safety device, do not operate again until cause of shut down has been determined and eliminated. Failure to observe this warning could result in severe personal injury or death.

WARNING

If damaged or defective components are discovered, repair must be performed before operations can begin. Perform required repairs and adjustments before proceeding. Do not operate the generator set with damaged components. Personal injury can occur if damaged parts are left unfixed. Failure to observe this warning could result in severe personal injury or death.

WARNING SUMMARY – CONTINUED

WARNING

Exhaust discharge contains deadly gases, including carbon monoxide. Do not operate generator set in enclosed area unless exhaust discharge is properly vented outside. Position generator set as far away from personnel, shelters, and occupied vehicles as possible. Failure to observe this warning could result in severe personal injury or death due to carbon monoxide poisoning.

WARNING

Diesel fuel is flammable and toxic to eyes, skin, and respiratory tract. Skin and eye protection are required when working in contact with diesel fuel. Avoid repeated or prolonged contact. Provide adequate ventilation. Operators are to wash exposed skin and change chemical-soaked clothing promptly if exposed to fuel. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Cooling system operates at high temperature and pressure. Contact with high pressure steam and/or liquids can result in burns and scalding. Shut down generator set, and allow system to cool before performing checks, services and maintenance, or wear gloves and additional protective clothing and goggles as required. Failure to comply with this warning can cause serious personal injury.

WARNING

Fuel used in this generator set is combustible and toxic to skin, eyes, and respiratory tract. Avoid repeated or prolonged contact. Handle only in a well-ventilated area. Keep away from sparks, open flames, or other sources of ignition. Do not splash fuel on hot components. Do not fuel generator set while it is operating. Do not overfill the tank. Ensure generator set is properly grounded before fueling. Ensure approved gloves and face shield are worn during handling. Failure to observe this warning could result in personal injury and equipment damage due to potential fuel ignition and possible explosion. Ensure approved gloves and face shield are worn during handling. Failure to observe this warning could result in severe personal injury or death.

WARNING

Liquids under pressure are generated as a result of operating this generator set. High-pressure leaks could cause severe personal injury or death. Failure to observe this warning could result in severe personal injury or death.

WARNING

Compressed air is dangerous and could cause serious bodily harm, if protective means or methods are not observed to prevent a chip or particle (of whatever size) from being blown into the eyes or to prevent unbroken skin of the operator or other personnel. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 pounds per square inch gauge (psig). Use it only with effective chip-guarding and personnel protective equipment (industrial safety glasses and full face shield). DO NOT use compressed air to dry parts when solvent cleaners have been used. Failure to observe this warning could result in severe personal injury.

WARNING SUMMARY – CONTINUED**WARNING**

Do not use TRICHLOROTRIFLUOROETHANE, TRICHLOROETHANE, and similar chemical solvents for ordinary cleaning of equipment. These substances threaten public health and the environment by destroying ozone in the Earth's upper atmosphere. Use suitable non-hazardous cleaning materials (see WP 0136) such as a clean cloth, water, and mild detergent or an approved substitute solvent, such as isopropyl alcohol. Failure to observe this warning could result in personal injury.

WARNING

Handle solvents as combustible liquids. Do not use near heat, sparks, or flame. Use solvents in well-ventilated areas only. Avoid prolonged breathing of vapor. Avoid bodily contact. Use chemical (solvent-resistant) gloves and chemical splash goggles when using solvent materials. Solvents may be reactive with acids and oxidizers; do not mix or cross-apply with other cleaners or chemicals. An organic vapor respirator with dust and mist filter is recommended when solvent is applied as a spray. Keep containers closed between applications. Provide mechanical ventilation if used in confined spaces. Store cleaning materials in a well-ventilated area away from food or drink. To avoid the possibility of spontaneous combustion, place solvent-saturated waste rags in a sealed metal container after use. Coordinate the use of this material with your supporting Industrial Hygiene and Safety Offices. Ensure you read and understand the Material Safety Data Sheet (MSDS) for the solvent before use. Failure to observe this warning could result in severe personal injury or death.

WARNING

Solvent used to clean parts is potentially dangerous to personnel and property. Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes. Wear goggles and rubber gloves to protect eyes and skin. Wash exposed skin thoroughly. Do not smoke or use near open flame or excessive heat. Failure to comply with this warning cause severe personal injury and/or damage to equipment.

WARNING

Adhesives used in maintaining this generator set (see WP 0136) are flammable and toxic. Vapors may ignite explosively. Avoid breathing in vapors. Provide adequate ventilation to prevent vapor concentrations in excess of permissible exposure levels. Keep away from heat, sparks, and open flame. Do not smoke. Extinguish all flames and turn off non-explosion-proof electrical equipment during use until vapors are dissipated. Close containers tightly. Failure to observe this warning could result in severe personal injury or death.

WARNING

To prevent injury to personnel and damage to equipment, use caution when lifting or moving generator set. Six men are required for manual lifting. Use lifting rings for lifting device and forklift openings for forklift only. Do not lift generator set over personnel. Failure to observe this warning could result in severe personal injury or death.

WARNING

Avoid contacting metal items with bare skin in extreme cold weather. Failure to observe this warning could result in severe personal injury or death.

WARNING SUMMARY – CONTINUED

WARNING

Metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry and do not wear loose clothing when working on equipment. Failure to comply may cause injury or death to personnel.

WARNING

Chemical Agent Resistive Coating (CARC) paint dust is a health hazard. Wear protective eyewear, a mask, and gloves when sanding CARC-painted surfaces. Failure to observe this warning could result in severe personal injury or death.

WARNING

If battery is not installed, battery cable ends must be isolated from each other, and positive end must be isolated from ground. Failure to isolate battery cable ends could result in severe electrical discharge. When not connected to battery, connect battery cable ends to plastic storage stud. Failure to observe this warning could result in severe personal injury or death.

WARNING

Operating the generator set exposes personnel to a high noise level. Hearing protection must be worn when operating or working near the generator set when the generator set is running. Failure to comply with this warning can cause hearing damage to personnel.

WARNING

With main access cover open, the noise level of the generator set when operating could cause hearing damage. Hearing protection must be worn when working within 3.0 m (10 ft. 6 in.) of the generator set while it is running. Failure to observe this warning could result in hearing loss.

WARNING

To prevent injury to personnel and damage to equipment, use caution when lifting or moving generator set. Use lifting rings for lifting device and forklift openings for forklift only. Do not lift generator set over personnel. Failure to observe this warning could result in personal injury or equipment damage.

WARNING

Class III oil leaks should be reported IMMEDIATELY to your supervisor. Fuel leaks of any kind require immediate system shutdown. Failure to observe this warning could result in severe personal injury or death.

WARNING

Make sure personnel are familiar with generator set before operating. Follow proper procedures. Failure to observe this warning could result in damage to equipment and could also result in severe personal injury or death.

WARNING

Battery acid can cause burns to unprotected skin. Wear safety goggles, chemical gloves, faceshield, apron, and avoid acid splash while working on the batteries. Failure to comply with this warning can cause severe personal injury.

WARNING SUMMARY – CONTINUED

WARNING

Batteries give off flammable gas. Do not smoke or use open flame when performing maintenance. Flames and explosion could result in severe personal injury or death. Failure to observe this warning could result in severe personal injury or death.

WARNING

Batteries give off a flammable gas. Do not smoke or use open flame when performing maintenance. Failure to comply with this warning can cause severe personal injury or death and equipment damage.

WARNING

Do not allow battery acid to contact skin or clothing. Contact of skin with battery acid liquid or inhalation of battery acid mist can cause severe burns, respiratory tract infection, and chronic bronchitis. If any battery acid liquid or mist contacts skin or eyes, immediately flush affected areas thoroughly with water. If vapors are inhaled, go to fresh air. Seek medical help immediately. Failure to observe this warning could result in severe personal injury or death.

WARNING

When disconnecting battery cables, always remove negative cable first and positive cable last. Connect cable ends to enclosure ground lugs to prevent contact. Failure to observe this warning could result in severe personal injury or death.

WARNING

When connecting battery cables, always connect positive cable first and negative cable last. Failure to observe this warning could result in severe personal injury or death.

WARNING

The generator set is heavy. Provide lifting hoist capable of lifting 500 lbs. Do not lift generator set over personnel. Enlist the help of an aide to prevent damage to equipment. Failure to observe this warning could result in severe personal injury or death.

WARNING

The rotor assembly is held in the stator by magnets. The rotor will snap into place in stator when installed. Use care to prevent injury to fingers. Failure to observe this warning could result in severe personal injury or death.

LIST OF EFFECTIVE PAGES / WORK PACKAGES

NOTE: SUPERSEDURE NOTICE - TM 9-6115-639-13&P, TO 35C2-3-386-51W/IPB, AND TM 10155A-13/1B, supersedes TM 9-6115-639-13&P dated 30 April 2010, including all changes. Date of issue for the revised manual is: 31 August 2017. Zero in the "Change No." column indicates an original page or work package.

Date of issue for the original manual is:

Original

31 August 2017

**TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 72 AND TOTAL
NUMBER OF WORK PACKAGES IS 137, CONSISTING OF THE FOLLOWING:**

Page / WP No.	Change No.	Page / WP No.	Change No.
Front cover	0	WP 0023 (2 pgs)	0
Blank	0	WP 0024 (2 pgs)	0
Warning summary (8 pgs)	0	WP 0025 (6 pgs)	0
i - xiv	0	WP 0026 (4 pgs)	0
Chp 1 title page	0	WP 0027 (2 pgs)	0
Blank	0	WP 0028 (4 pgs)	0
WP 0001 (12 pgs)	0	WP 0029 (2 pgs)	0
WP 0002 (18 pgs)	0	WP 0030 (4 pgs)	0
WP 0003 (6 pgs)	0	WP 0031 (2 pgs)	0
Chp 2 title page	0	WP 0032 (2 pgs)	0
Blank	0	WP 0033 (2 pgs)	0
WP 0004 (6 pgs)	0	WP 0034 (2 pgs)	0
WP 0005 (10 pgs)	0	WP 0035 (2 pgs)	0
WP 0006 (6 pgs)	0	WP 0036 (2 pgs)	0
Chp 3 title page	0	WP 0037 (2 pgs)	0
Blank	0	WP 0038 (2 pgs)	0
WP 0007 (2 pgs)	0	WP 0039 (2 pgs)	0
WP 0008 (10 pgs)	0	WP 0040 (2 pgs)	0
Chp 4 title page	0	WP 0041 (2 pgs)	0
Blank	0	WP 0042 (2 pgs)	0
WP 0009 (4 pgs)	0	WP 0043 (2 pgs)	0
WP 0010 (6 pgs)	0	WP 0044 (2 pgs)	0
WP 0011 (4 pgs)	0	WP 0045 (2 pgs)	0
Chp 5 title page	0	WP 0046 (2 pgs)	0
Blank	0	WP 0047 (4 pgs)	0
WP 0012 (4 pgs)	0	WP 0048 (2 pgs)	0
WP 0013 (24 pgs)	0	WP 0049 (2 pgs)	0
Chp 6 title page	0	WP 0050 (2 pgs)	0
Blank	0	WP 0051 (4 pgs)	0
WP 0014 (4 pgs)	0	WP 0052 (2 pgs)	0
WP 0015 (4 pgs)	0	WP 0053 (4 pgs)	0
WP 0016 (6 pgs)	0	WP 0054 (4 pgs)	0
WP 0017 (4 pgs)	0	WP 0055 (4 pgs)	0
WP 0018 (4 pgs)	0	WP 0056 (4 pgs)	0
WP 0019 (4 pgs)	0	WP 0057 (2 pgs)	0
WP 0020 (8 pgs)	0	WP 0058 (2 pgs)	0
WP 0021 (2 pgs)	0	WP 0059 (4 pgs)	0
WP 0022 (6 pgs)	0	WP 0060 (2 pgs)	0

LIST OF EFFECTIVE PAGES - CONTINUED

Page / WP No.	Change No.	Page / WP No.	Change No.
WP 0061 (2 pgs)	0	WP 0111 (4 pgs)	0
WP 0062 (2 pgs)	0	WP 0112 (4 pgs)	0
WP 0063 (6 pgs)	0	WP 0113 (4 pgs)	0
WP 0064 (4 pgs)	0	WP 0114 (4 pgs)	0
WP 0065 (2 pgs)	0	WP 0115 (6 pgs)	0
WP 0066 (2 pgs)	0	WP 0116 (4 pgs)	0
WP 0067 (2 pgs)	0	WP 0117 (4 pgs)	0
WP 0068 (2 pgs)	0	WP 0118 (4 pgs)	0
WP 0069 (2 pgs)	0	WP 0119 (4 pgs)	0
WP 0070 (2 pgs)	0	WP 0120 (4 pgs)	0
WP 0071 (2 pgs)	0	WP 0121 (4 pgs)	0
WP 0072 (2 pgs)	0	WP 0122 (4 pgs)	0
WP 0073 (2 pgs)	0	WP 0123 (4 pgs)	0
WP 0074 (2 pgs)	0	WP 0124 (4 pgs)	0
WP 0075 (4 pgs)	0	WP 0125 (4 pgs)	0
WP 0076 (4 pgs)	0	WP 0126 (4 pgs)	0
WP 0077 (4 pgs)	0	WP 0127 (4 pgs)	0
WP 0078 (4 pgs)	0	WP 0128 (2 pgs)	0
WP 0079 (8 pgs)	0	WP 0129 (4 pgs)	0
WP 0080 (2 pgs)	0	WP 0130 (6 pgs)	0
WP 0081 (2 pgs)	0	Chp 8 title page	0
WP 0082 (2 pgs)	0	Blank	0
WP 0083 (4 pgs)	0	WP 0131 (2 pgs)	0
WP 0084 (2 pgs)	0	WP 0132 (4 pgs)	0
WP 0085 (2 pgs)	0	WP 0133 (10 pgs)	0
WP 0086 (2 pgs)	0	WP 0134 (4 pgs)	0
WP 0087 (4 pgs)	0	WP 0135 (2 pgs)	0
Chp 7 title page	0	WP 0136 (4 pgs)	0
Blank	0	WP 0137 (2 pgs)	0
WP 0088 (6 pgs)	0	FP-1	0
WP 0089 (4 pgs)	0	FP-2 Blank	0
WP 0090 (4 pgs)	0	FP-3	0
WP 0091 (4 pgs)	0	FP-4 Blank	0
WP 0092 (4 pgs)	0	FP-5	0
WP 0093 (4 pgs)	0	FP-6 Blank	0
WP 0094 (4 pgs)	0	FP-7	0
WP 0095 (4 pgs)	0	FP-8 Blank	0
WP 0096 (4 pgs)	0	FP-9	0
WP 0097 (4 pgs)	0	FP-10 Blank	0
WP 0098 (4 pgs)	0	FP-11	0
WP 0099 (4 pgs)	0	FP-12 Blank	0
WP 0100 (4 pgs)	0	FP-13	0
WP 0101 (4 pgs)	0	FP-14 Blank	0
WP 0102 (4 pgs)	0	FP-15	0
WP 0103 (4 pgs)	0	FP-16 Blank	0
WP 0104 (4 pgs)	0	FP-17	0
WP 0105 (4 pgs)	0	FP-18 Blank	0
WP 0106 (4 pgs)	0	FP-19	0
WP 0107 (4 pgs)	0	FP-20 Blank	0
WP 0108 (4 pgs)	0	FP-21	0
WP 0109 (4 pgs)	0	FP-22 Blank	0
WP 0110 (4 pgs)	0	FP-23	0

LIST OF EFFECTIVE PAGES - CONTINUED

Page / WP No.	Change No.	Page / WP No.	Change No.
FP-24 Blank	0		
FP-25	0		
FP-26 Blank	0		
FP-27	0		
FP-28 Blank	0		
FP-29	0		
FP-30 Blank	0		
FP-31	0		
FP-32 Blank	0		
Inside back cover	0		
Back cover	0		

**HEADQUARTERS,
DEPARTMENT OF THE ARMY
Washington, D.C., 31 AUGUST 2017**

TECHNICAL MANUAL

**OPERATOR AND FIELD MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST
FOR**

**3 KW TACTICAL QUIET GENERATOR SET
MEP-831A (NSN 6115-01-285-3012) (EIC VG6)
MEP-832A (NSN 6115-01-287-2431) (EIC VN7)**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Reports, as applicable by the requiring Service, should be submitted as follows:

- (a) (A) Army - Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) located in the back of this manual, directly to: Commander, U.S. Army Communications-Electronics Command, 6001 Combat Drive, ATTN: AMSEL-LCL-ECM, 6001 Combat Drive, Aberdeen Proving Ground, MD 21005-1846. You may also send in your recommended changes via electronic mail or by fax. Our fax number is 443-861-5521, DSN 848-5521. Our e-mail address is usarmy.APG.cecom.mbx.amsel-lc-leo-pubs-chg@mail.mil. Our online web address for entering and submitting DA Form 2028 is <https://lrcweb1.apg.army.mil/pie/2028.cfm>.
- (b) (MC) Marine Corps - Submit notice of discrepancies or suggest changes on a NAVMC 10772. The NAVMC may be submitted using either of the following:
 - a. The preferred method of submittal is using <https://portal.logcom.usmc.mil/sites/pubs> URL which will allow direct entry to the LOGCOM SharePoint Pubs site (LOGCOM SharePoint access and CAC required) where the form (Part I or Part II) can be filled out and submitted to the NAVMC database. Problems or questions regarding the NAVMC 10772 program should be reported by calling DSN 567-7628 or DSN 567-5017 (Commercial number is (229) 639-7628 or (229) 639-5017).
 - b. The alternate method of submittal does not require a Common Access Card (CAC) to access the form. Click on <https://navalforms.documentservices.dla.mil/web/public/home>, click "FORMS", select the "Keyword Search" button, enter "10772" in the Search Criteria Box. Under "type" click on download page button. Click on PDF icon. Enter user data in the appropriate fields. Must have users contact information block filled with Unit address and telephone number. Click on the "Envelope" icon in the tool bar. Select "Send Copy", click on "OK". When the PDF document is created, an Outlook Email screen will open with the .PDF as an attachment. On the TO: line type SMB.LOG.Tech.Pubs.fct@usmc.mil. In the body of the email, type any additional information you wish to provide. Click "SEND".
- (c) (F) Air Force - By Air Force AFTO Form 22 (Technical Manual (TM) Change Recommendation and Reply) in accordance with TO 00-5-1-WA-1.
A reply will be furnished to you.

*** SUPERSEDURE NOTICE** - TM 9-6115-639-13&P, TO 35C2-3-386-51W/IPB, AND TM 10155A-13/1B, supersedes TM 9-6115-639-13&P dated 30 April 2010, including all changes. Date of issue for the revised manual is: 31 August 2017.

DISTRIBUTION STATEMENT C. Distribution authorized to U.S. Government agencies and their contractors for administrative or operational use, as determined on 1 August 2015. Other requests for this document shall be referred to Commander, U.S. Army Communications-Electronics Command, 6001 Combat Drive, ATTN: AMSEL-LCL-ECM, Aberdeen Proving Ground, MD 21005-1846.

WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, et. seq.) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., App. 2401 et. seq. Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DoD Directive 5230.25."

DESTRUCTION NOTICE - Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

TABLE OF CONTENTS

	Page No. <u>WP Sequence No.</u>
How To Use This Manual	xi
Chapter 1 - Operator and Field General Information, Equipment Description and Theory of Operation	
General Information	WP 0001
Figure 1. 3 kW Tactical Quiet Generator Set	WP 0001-1
Table 1. Demolition Priority Levels	WP 0001-3
Table 2. Manufacturers Warranties	WP 0001-4
Equipment Description and Data	WP 0002
Figure 1. Location of Generator Set Components	WP 0002-3
Table 1. Figure 1 Legend	WP 0002-3
Figure 2. Diesel Engine/Generator Assembly	WP 0002-5
Table 2. Figure 2 Legend	WP 0002-6
Figure 3. Generator Set Fuel System	WP 0002-8
Table 3. Figure 3 Legend	WP 0002-8
Table 4. Equipment Data	WP 0002-9
Figure 4. Generator Set Data, Instruction, and Warning Plates (Overview)	WP 0002-12
Table 5. Figure 4 Legend	WP 0002-13
Figure 5. Fuel Capacity, Oil Capacity, and Operation Plates	WP 0002-14
Figure 6. ID Plates (60HZ and 400HZ)	WP 0002-15
Figure 7. Kilowatt Capacity (400HZ and 60HZ), Oil Drain, and Fuel Drain Plates	WP 0002-16
Figure 8. Battery Connections; GFCI; 120 Volts, 10 AMPS, 60HZ; Slave Receptacle 24 VDC; and IUID Plates	WP 0002-17
Figure 9. Ground, Terminal Voltage, Caution (High Voltage), and Caution (Ground Set Before Use) Plates	WP 0002-18
Theory of Operation	WP 0003
Figure 1. Fuel System Schematic	WP 0003-5
Table 1. Figure 1 Legend	WP 0003-5
Chapter 2 - Operator Instructions	
Description and Use of Operator Controls and Indicators	WP 0004
Figure 1. Generator Set Controls and Indicators	WP 0004-1
Table 1. Operators Controls and Indicators Table	WP 0004-4
Operation Under Usual Conditions	WP 0005
Figure 1. Ground Rod and Cable Installation	WP 0005-3
Table 1. Figure 1 Legend	WP 0005-3
Figure 2. Operating Procedures	WP 0005-5
Table 2. Figure 2 Legend	WP 0005-5
Operation Under Unusual Conditions	WP 0006

TABLE OF CONTENTS – CONTINUED

	Page No. WP Sequence No.
Figure 1. Manual Engine Starting	WP 0006-3
Table 1. Figure 1 Legend	WP 0006-3
Chapter 3 - Operator Troubleshooting Procedures	
Operator Troubleshooting Index	WP 0007
Operator Troubleshooting Procedures	WP 0008
Chapter 4 - Operator Maintenance Instructions	
Operator PMCS Introduction	WP 0009
Table 1. Leakage Definitions	WP 0009-4
Operator PMCS, Including Lubrication Instructions	WP 0010
Table 1. Operator Preventive Maintenance Checks and Services (PMCS)	WP 0010-1
Figure 1. Oil Fill Cap	WP 0010-6
Operator Maintenance Instructions	WP 0011
Figure 1. Air Filter Replacement	WP 0011-3
Chapter 5 - Field Troubleshooting Procedures	
Field Troubleshooting Index	WP 0012
Figure 1. Troubleshooting	WP 0012-2
Field Troubleshooting Procedures	WP 0013
Chapter 6 - Field Maintenance Instructions	
Service Upon Receipt	WP 0014
Figure 1. Ground Rod and Cable Installation	WP 0014-2
Field PMCS Introduction	WP 0015
Table 1. Leakage Definitions	WP 0015-4
Field PMCS, Including Lubrication Instructions	WP 0016
Table 1. Field Preventive Maintenance Checks and Services	WP 0016-1
Table 2. Lubricant Table for Generator Set MEP-831A/MEP-832A	WP 0016-4
Figure 1. Engine Oil Servicing	WP 0016-6
GENERATOR SET: INSPECT, SERVICE	WP 0017
Figure 1. Generator Set	WP 0017-2
Table 1. Figure 1 Legend	WP 0017-2
ENGINE ASSEMBLY, DIESEL: INSPECT, SERVICE	WP 0018
Figure 1. Engine Assembly	WP 0018-2
Table 1. Figure 1 Legend	WP 0018-3
GOVERNOR CONTROL MODULE: INSPECT, TEST, REMOVE, REPLACE	WP 0019
Figure 1. Control Panel	WP 0019-1
Figure 2. Governor Control Module	WP 0019-2
GOVERNOR ACTUATOR ASSEMBLY: INSPECT, TEST, ADJUST, REMOVE, REPLACE	WP 0020

TABLE OF CONTENTS – CONTINUED

	Page No. WP Sequence No.
Figure 1. Governor Actuator Assembly	WP 0020-4
Figure 2. Governor Adjustment	WP 0020-5
Figure 3. Governor Control Module	WP 0020-6
Figure 4. Governor Actuator	WP 0020-7
ENGINE WIRING HARNESS: INSPECT, REMOVE, REPLACE	WP 0021
Figure 1. Engine Wiring Harness	WP 0021-2
PERMANENT MAGNET ALTERNATOR (PMA): INSPECT, TEST	WP 0022
Figure 1. Pin Winding	WP 0022-2
Table 1. High Range Resistance	WP 0022-2
Figure 2. Permanent Magnet Alternator (G1)	WP 0022-4
Figure 3. Frequency Converter (A8)	WP 0022-5
Figure 4. Battery Charging Regulator (A9)	WP 0022-6
ELECTRICAL SYSTEM ASSEMBLY: INSPECT, TEST	WP 0023
BATTERY CHARGING REGULATOR: INSPECT, REMOVE, REPLACE	WP 0024
Figure 1. Battery Charging Regulator	WP 0024-2
BATTERY: INSPECT, TEST, SERVICE, REMOVE, REPLACE	WP 0025
Figure 1. Battery System	WP 0025-5
BATTERY CABLES: INSPECT, REMOVE, SERVICE, REPLACE	WP 0026
Figure 1. Battery Cable Assembly	WP 0026-3
CONTACTOR ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0027
Figure 1. Contactor Assembly	WP 0027-2
FREQUENCY CONVERTER (A8): INSPECT, TEST, REMOVE, REPLACE	WP 0028
Figure 1. Frequency Converter (A8) Assembly	WP 0028-4
RELAYS, ELECTROMAGNETIC: INSPECT, REMOVE, REPLACE	WP 0029
Figure 1. Relays, Electromagnetic	WP 0029-2
CONTROL BOX ASSEMBLY: INSPECT, TEST, REMOVE, REPLACE	WP 0030
Figure 1. Control Box Assembly	WP 0030-3
CONTROL PANEL ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0031
Figure 1. Control Panel Assembly	WP 0031-2
PANEL, METERS, GAUGES, AND SWITCHES: INSPECT AND REPLACE	WP 0032
HOURS METER: INSPECT, REMOVE, REPLACE	WP 0033
Figure 1. HOURS Meter	WP 0033-2
FUEL-LEVEL GAUGE METER: INSPECT, REMOVE, REPLACE	WP 0034
Figure 1. FUEL LEVEL Gauge	WP 0034-2
VOLTAGE METER: INSPECT, REMOVE, REPLACE	WP 0035
Figure 1. VOLTAGE Meter	WP 0035-2
LOAD METER: INSPECT, REMOVE, REPLACE	WP 0036
Figure 1. LOAD Meter	WP 0036-2

TABLE OF CONTENTS – CONTINUED

	Page No. WP Sequence No.
FAULT INDICATOR MODULE: INSPECT, TEST, REMOVE, REPLACE	WP 0037
Figure 1. 24 VDC	WP 0037-1
Figure 2. Fault Indicator Module	WP 0037-2
OPERATOR SWITCHES: INSPECT, REMOVE, REPLACE	WP 0038
Figure 1. Operator Switches	WP 0038-2
EMERGENCY STOP BUTTON: INSPECT, REMOVE, REPLACE	WP 0039
Figure 1. Emergency Stop Button	WP 0039-2
DC CIRCUIT BREAKER: INSPECT, REMOVE, REPLACE	WP 0040
Figure 1. DC CIRCUIT BREAKER	WP 0040-2
CIRCUIT INTERRUPTER INDICATOR LIGHT: INSPECT, REMOVE, REPLACE	WP 0041
Figure 1. Circuit Interrupter Indicator Light	WP 0041-2
VOLTAGE ADJUST RHEOSTAT: INSPECT, REMOVE, REPLACE	WP 0042
Figure 1. Voltage Adjust Rheostat	WP 0042-2
RELAY: INSPECT, REMOVE, REPLACE	WP 0043
Figure 1. Control Box Relays	WP 0043-2
FUSE, DIODE, AND TERMINAL BLOCK: INSPECT, TEST, REMOVE, REPLACE	WP 0044
Figure 1. Fuses, Diodes, and Terminal Block	WP 0044-2
RECEPTACLE, FILTERS, TERMINALS, AND VOLTAGE RESISTOR: INSPECT, TEST, REMOVE, REPLACE	WP 0045
Figure 1. Convenience Receptacle	WP 0045-2
GROUND FAULT CIRCUIT INTERRUPTER (GFCI): INSPECT, TEST, REMOVE, REPLACE	WP 0046
Figure 1. Ground Fault Circuit Interrupter (GFCI)	WP 0046-2
LOAD TERMINALS AND EMI FILTER: INSPECT, REMOVE, REPLACE	WP 0047
Figure 1. Load Terminals and EMI Filter	WP 0047-3
VOLTAGE RESISTOR: INSPECT, REMOVE, REPLACE	WP 0048
Figure 1. Voltage Resistors	WP 0048-2
CONTROL BOX WIRING HARNESS: INSPECT	WP 0049
Figure 1. Control Box Wiring Harness	WP 0049-1
COOLING SYSTEM: INSPECT, TEST	WP 0050
Figure 1. Cooling System	WP 0050-2
COOLING FAN ASSEMBLY: INSPECT, TEST, REMOVE, REPLACE	WP 0051
Figure 1. Temperature Switch and Cooling Fan	WP 0051-3
HI/LO TEMPERATURE SWITCHES: INSPECT, TEST, REMOVE, REPLACE	WP 0052
Figure 1. HI/LO Temperature Switches	WP 0052-2
FUEL SYSTEM ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0053
Figure 1. Fuel System Assembly	WP 0053-2
Table 1. Figure 1 Legend	WP 0053-2
FUEL TANK STRAINER ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0054

TABLE OF CONTENTS – CONTINUED

	Page No. WP Sequence No.
Figure 1. Fuel Tank Strainer Assembly	WP 0054-3
FUEL-LEVEL ASSEMBLY: INSPECT, TEST, REMOVE, REPLACE	WP 0055
Figure 1. Fuel-Level Sender Assembly	WP 0055-2
FUEL-LEVEL SWITCH: INSPECT, TEST, REMOVE, REPLACE	WP 0056
Figure 1. Fuel-Level Switch	WP 0056-3
FUEL TANK PICKUP TUBE: INSPECT, REMOVE, REPLACE	WP 0057
Figure 1. Fuel Tank Pickup Tube	WP 0057-2
PRIMARY FUEL PUMP: INSPECT, TEST, REMOVE, REPLACE	WP 0058
Figure 1. Primary Fuel Pump	WP 0058-2
AUXILIARY FUEL PUMP: INSPECT, TEST, REMOVE, REPLACE	WP 0059
Figure 1. Auxiliary Fuel Pump	WP 0059-2
FUEL FILTER/WATER SEPARATOR: INSPECT, REMOVE, REPLACE	WP 0060
Figure 1. Fuel Filter/Water Separator	WP 0060-2
AIR CLEANER ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0061
Figure 1. Air Cleaner Assembly	WP 0061-2
FRAME AND HOUSING ASSEMBLY: INSPECT	WP 0062
Figure 1. Frame and Housing Assembly	WP 0062-2
MAIN ACCESS COVER: INSPECT, TEST, REMOVE, REPLACE	WP 0063
Figure 1. Main Access Cover (Overall View)	WP 0063-4
Figure 2. Main Access Cover (Access Cover Latch and Air Louver)	WP 0063-5
Figure 3. Main Access Cover (Insulation, Document Tray, and Laminated Cards)	WP 0063-6
FRAME AND HOUSING PANELS: INSPECT, REMOVE, REPLACE	WP 0064
Figure 1. Frame and Housing Panels	WP 0064-3
FRAME AND LIFTING HANDLES, LIFTING RINGS: INSPECT, REMOVE, REPLACE	WP 0065
Figure 1. Frame and Lifting Handles	WP 0065-2
NATO SLAVE RECEPTACLE: INSPECT, REMOVE, REPLACE	WP 0066
Figure 1. NATO Slave Receptacle	WP 0066-2
SKID BASE: INSPECT, REMOVE, REPLACE	WP 0067
Figure 1. Skid Base	WP 0067-2
ID PLATES: INSPECT, REMOVE, REPLACE	WP 0068
Figure 1. ID Plates	WP 0068-2
LUBRICATION SYSTEM: INSPECT, SERVICE	WP 0069
Figure 1. Lubrication System	WP 0069-2
OIL DRAIN ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0070
Figure 1. Oil Drain Assembly	WP 0070-2
OIL PRESSURE SWITCH: INSPECT, REMOVE, REPLACE	WP 0071
Figure 1. Oil Pressure Switch	WP 0071-2
ENGINE OIL TEMPERATURE SWITCH: INSPECT, REMOVE, REPLACE	WP 0072

TABLE OF CONTENTS – CONTINUED

	Page No. WP Sequence No.
Figure 1. Engine Oil Temperature Switch	WP 0072-2
OIL FILTER: INSPECT, REMOVE, REPLACE	WP 0073
Figure 1. Oil Filter	WP 0073-2
EXHAUST SYSTEM ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0074
Figure 1. Exhaust System Assembly	WP 0074-2
MUFFLER ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0075
Figure 1. Muffler Assembly	WP 0075-3
BELLOWS ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0076
Figure 1. Bellows Assembly	WP 0076-3
DUCT ASSEMBLY: INSPECT, REMOVE, REPLACE	WP 0077
Figure 1. Duct Assembly	WP 0077-3
GENERATOR SET/ENGINE ASSEMBLY: INSPECT, TEST, REMOVE, REPLACE	WP 0078
Figure 1. Generator Set Engine/Alternator Assembly	WP 0078-4
PERMANENT MAGNET ALTERNATOR (PMA): INSPECT, TEST, REMOVE, REPLACE	WP 0079
Figure 1. Pin Winding	WP 0079-2
Table 1. High Range Resistance	WP 0079-2
Figure 2. Permanent Magnet Alternator (G1)	WP 0079-4
Figure 3. Frequency Converter (A8)	WP 0079-5
Figure 4. Battery Charging Regulator (A9)	WP 0079-6
Figure 5. Permanent Magnet Alternator	WP 0079-8
ELECTRICAL SYSTEM ASSEMBLY: INSPECT, TEST, REPLACE	WP 0080
CONTROL BOX WIRING HARNESS: INSPECT, TEST, REMOVE, REPLACE	WP 0081
Figure 1. Control Box Wiring Harness	WP 0081-2
FUEL TANK: INSPECT, REMOVE, REPLACE	WP 0082
Figure 1. Fuel Tank	WP 0082-2
PREPARATION FOR STORAGE OR SHIPMENT	WP 0083
Figure 1. Special Packaging Instructions, MEP-831A/MEP-832A (Sheet 1 of 2)	WP 0083-3
Figure 2. Special Packaging Instructions, MEP-831A/MEP-832A (Sheet 2 of 2)	WP 0083-4
GENERAL MAINTENANCE WORK PACKAGE	WP 0084
Table 1. Fold Out Diagrams	WP 0084-1
Figure 1. Typical Manufactured Wire	WP 0084-1
ILLUSTRATED LIST OF MANUFACTURED ITEMS INTRODUCTION	WP 0085
Illustrated List of Manufactured Items	WP 0086
Figure 1. HOSE, NONMETALLIC	WP 0086-1
Table 1. HOSE, NONMETALLIC	WP 0086-1
Torque Limits	WP 0087
Table 1. Torque Limits for Dry Fasteners	WP 0087-1
Table 2. Effect of Lubrication on Torque	WP 0087-2

TABLE OF CONTENTS – CONTINUED

	Page No. WP Sequence No.
Table 3. Torque Limits for Dry Fasteners (Metric).....	WP 0087-3
 Chapter 7 - Operator and Field Parts Information	
INTRODUCTION.....	WP 0088
Table 1. SMR Code Explanation.....	WP 0088-1
Group 00 GENERATOR SET	WP 0089
Group 01 ENGINE ASSEMBLY, DIESEL	WP 0090
Group 0101 GOVERNOR CONTROL MODULE.....	WP 0091
Group 010101 GOVERNOR ACTUATOR ASSEMBLY	WP 0092
Group 02 PERMANENT MAGNET ALTERNATOR (PMA)	WP 0093
Group 0301 BATTERY CHARGING REGULATOR	WP 0094
Group 0302 BATTERY	WP 0095
Group 0303 BATTERY CABLES.....	WP 0096
Group 0304 CONTACTOR ASSEMBLY	WP 0097
Group 0305 FREQUENCY CONVERTER (A8).....	WP 0098
Group 0306 RELAYS, ELECTROMAGNETIC	WP 0099
Group 04 CONTROL BOX ASSEMBLY	WP 0100
Group 0401 CONTROL BOX TERMINALS	WP 0101
Group 0402 RECEPTACLE, FILTERS, TERMINALS, AND VOLTAGE RESISTORS	WP 0102
Group 0403 CONTROL PANEL, METERS, GAUGES, AND SWITCHES	WP 0103
Group 0501 COOLING FAN ASSEMBLY	WP 0104
Group 0502 HI/LO TEMPERATURE SWITCHES	WP 0105
Group 0601 FUEL TANK STRAINER ASSEMBLY	WP 0106
Group 0602 FUEL TANK	WP 0107
Group 0603 FUEL-LEVEL ASSEMBLY	WP 0108
Group 0604 FUEL-LEVEL SWITCH	WP 0109
Group 0605 FUEL TANK PICKUP TUBE	WP 0110
Group 0606 PRIMARY FUEL PUMP	WP 0111
Group 0607 AUXILIARY FUEL PUMP	WP 0112
Group 0608 FUEL FILTER-WATER SEPARATOR	WP 0113
Group 0609 AIR CLEANER ASSEMBLY	WP 0114
Group 0701 MAIN ACCESS COVER	WP 0115
Group 0702 FRAME AND HOUSING PANELS	WP 0116
Group 0703 FRAME AND LIFTING HANDLES, LIFTING RINGS	WP 0117
Group 0704 NATO SLAVE RECEPTACLE	WP 0118
Group 0705 SKID BASE	WP 0119
Group 0706 ID PLATES	WP 0120
Group 0801 OIL DRAIN ASSEMBLY	WP 0121
Group 0802 OIL PRESSURE SWITCH	WP 0122

TABLE OF CONTENTS – CONTINUED

	Page No. WP Sequence No.
Group 0803 ENGINE OIL TEMPERATURE SWITCH	WP 0123
Group 0804 OIL FILTER	WP 0124
Group 0901 MUFFLER ASSEMBLY	WP 0125
Group 0902 BELLOWS ASSEMBLY	WP 0126
Group 0903 DUCT ASSEMBLY	WP 0127
Group 98 Bulk Material	WP 0128
NSN Index	WP 0129
P/N Index	WP 0130
 Chapter 8 - Operator and Field Supporting Information	
References	WP 0131
Introduction for Standard Two-Level MAC	WP 0132
Standard Two-Level MAC	WP 0133
Table 1. 3kW TACTICAL QUIET GENERATOR SETS MEP-831A (60 Hz) AND MEP-832A (400 Hz)	WP 0133-1
Table 2. Tools and Test Equipment for Generator Set (3 kW TQG, MEP-831A/ MEP-832A)	WP 0133-8
Table 3. Remarks for Generator Set (3 kW TQG, MEP 831A/832A)	WP 0133-8
Components of End Item (COEI) and Basic Issue Items (BII) Lists	WP 0134
Table 1. Component of End Items (COEI) List	WP 0134-1
Figure 1. Basic Issue Items (Ground Rod)	WP 0134-3
Table 2. Basic Issue Items (BII)	WP 0134-3
Additional Authorization List (AAL)	WP 0135
Table 1. Additional Authorization List	WP 0135-1
Expendable and Durable Items List	WP 0136
Table 1. Expendable and Durable Items List	WP 0136-1
Mandatory Replacement Parts	WP 0137
Table 1. Mandatory Replacement Parts List	WP 0137-1
 Foldout Figures	
FO-1. Generator Set Electrical Schematic	FP-1
FO-2. Generator Set Wiring Diagram	FP-5
FO-3. Engine Wiring Harness Diagram, 60 Hz	FP-13
FO-4. Engine Wiring Harness Diagram, 400 Hz	FP-17
FO-5. Control Box Wiring Harness Diagram, 60 Hz	FP-21
FO-6. Control Box Wiring Harness Diagram, 400 Hz	FP-27

HOW TO USE THIS MANUAL

This manual contains operator and field maintenance instructions with Repair Parts and Special Tools List (RPSTL) for the 3 kW Skid Mounted, Tactical Quiet Generator Set, MEP-831A (60 Hz) and MEP-832A (400 Hz).

NOTE

Throughout the family of manuals, directional orientation in relation to the equipment is described from the point of view of the operator facing the operator's controls looking out over the equipment. From this perspective, the end of the equipment containing the operator's controls will be referred to as the rear.

This manual provides operating procedures, troubleshooting, maintenance, and supporting information required to operate and maintain the 3 kW Skid Mounted, Tactical Quiet Generator Set. Listed below are some of the features included in this TM to help locate and use the provided information.

WORK PACKAGES

This TM has been organized using the WP format. Each chapter contains a series of WPs rather than sections and paragraphs. Each WP is designed to stand alone as a complete information module; if the user keeps the section(s) of this TM in a loose-leaf binder, the user will be able to remove just the WP needed to complete a specific task. Here are some WP features of which the user should be aware.

Each WP is numbered using a four-digit number beginning with WP 0001. WPs are numbered sequentially throughout the TM (ex. WP 0016. WP 0020. etc.). The Table of Contents lists each chapter and WP title as well as all figures and tables contained within each. Figures and tables are numbered sequentially for each WP.

The WP number is located at the top right of each page. It is also located at the bottom of the page with the WP page number included (0001-1 would be page 1 of the General Information WP (WP 0001, General Information)).

Each WP starts on a right-hand page. This is done so the user can remove a single WP from the paper TM if needed for a task. Blank pages are assigned a number, but it appears on the preceding or following page. For example, if page 0001-10 of a WP is blank, page 0001-9 will have the number 0001-9/10 blank; or if page 0001-1 of a WP is blank, page 0001-2 will have the number 0001-1 blank/2.

Each WP containing step-by-step maintenance or troubleshooting procedures will end with the words END OF TASK, and each WP ends with the statement END OF WORK PACKAGE. Think of each WP as a small, stand-alone TM.

References to equipment Data and Description Plates are printed as they appear on the equipment whenever possible. On-screen text is shown in brackets in the manual (i.e. [Ready to Crank]).

Warnings, Cautions and Notes Definitions

Warnings, cautions, notes, chapter titles, and paragraph headings are printed in bold type. Icons related to warnings are shown directly above the warning text.

The following definitions apply to WARNINGS, CAUTIONS and NOTES found throughout this publication. Warning, cautions and notes provide supplemental information. Personnel must understand and apply these warnings, cautions and notes during many phases of operation and maintenance to ensure personnel safety and health and the protection of property. Portions of this information may be repeated in certain chapters of this publication for emphasis.

WARNING

A warning identifies a clear danger to the person doing that procedure.

CAUTION

A warning identifies a clear danger to the person doing that procedure.

HOW TO USE THIS MANUAL – CONTINUED

NOTE

A note highlights essential procedures, conditions, or statements or conveys important instructional data to the user.

CHAPTER OVERVIEW

Chapter 1 - General Information, Equipment Description and Theory of Operation

Chapter 1 provides an introduction to the 3 kW Skid Mounted, Tactical Quiet Generator Set. It is divided into three work packages, as follows:

General Information. This work package provides general information about this manual and the related forms and records. Instructions are provided for making equipment improvement recommendations. Coverage includes a reference to the TM that contains instructions on destruction of materiel to prevent enemy use. Also, a list of abbreviations and acronyms is provided. Also, a nomenclature cross-reference list is provided as well as a list of abbreviations and acronyms.

Equipment Description and Data. This work package describes capabilities, characteristics, and features. It provides basic equipment data and shows the locations of major components. Descriptions of the major components are also provided.

Theory of Operation. This work package provides functional descriptions of the equipment.

Chapter 2 - Operator Instructions

Chapter 2 provides instructions for operating the 3 kW Skid Mounted, Tactical Quiet Generator Set. The chapter is divided into three work packages, as follows:

Description and Use of Operator Controls and Indicators. This work package provides references to the applicable equipment technical manuals. Those references contain information on operator controls and indicators for the equipment.

Operation Under Usual Conditions. This work package contains instructions for preparing the equipment for use and operation under normal conditions. Coverage includes connection instructions and preparation instructions for movement to a new worksite.

Operation Under Unusual Conditions. This work package provides unusual operating procedures or references to the applicable accompanying technical manuals.

Chapter 3 - Operator Troubleshooting Procedures

Chapter 3 covers troubleshooting procedures of the 3 kW Skid Mounted, Tactical Quiet Generator Set to be performed by the operator. The chapter is divided as follows:

Operator Troubleshooting Index. This work package provides a troubleshooting introduction and malfunction/symptom index to direct you to the appropriate troubleshooting procedure at the operator level.

Operator Troubleshooting Procedures. This work package provides troubleshooting procedures and corrective actions that are to be performed by the operator. It also provides references to the applicable technical manuals.

Chapter 4 - Operator Maintenance Instructions

Chapter 4 covers maintenance procedures for the 3 kW Skid Mounted, Tactical Quiet Generator Set to be performed by the operator. Its purpose is to provide you with the information that you need to keep the equipment in good operating condition. The chapter is divided as follows:

Operator PMCS Introduction. This work package provides a detailed explanation of each table entry in the PMCS table along with applicable warnings, cautions and notes prior to starting on the PMCS procedures.

Operator PMCS, Including Lubrication Instructions. This work package contains detailed instructions that the operator must perform before, during, and after preventive maintenance checks and services. Coverage includes all operator PMCS for the equipment. This work package also has a section which provides references to the applicable lubrication instructions.

HOW TO USE THIS MANUAL – CONTINUED

Operator Maintenance Procedures. These work packages refer the operator to the preventive maintenance checks and services required by WP 0011.

Chapter 5 - Field Troubleshooting Procedures

Chapter 5 covers troubleshooting procedures of the 3 kW Skid Mounted, Tactical Quiet Generator Set to be performed by field level maintenance. The chapter is divided as follows:

Field Troubleshooting Index. This work package provides a troubleshooting introduction and malfunction/symptom index to direct you to the appropriate troubleshooting procedure at the field maintenance level.

Field Troubleshooting Procedures. This work package covers troubleshooting procedures and corrective actions that are to be performed at the field maintenance level.

Chapter 6 - Field Maintenance Instructions

Chapter 6 provides instructions covering the 3 kW Skid Mounted, Tactical Quiet Generator Set maintenance that must be performed at field level. The chapter is divided as follows:

Service Upon Receipt. This work package contains instructions for inspecting and servicing the equipment when it is received. It includes instructions for unpacking the equipment when it is received. The instructions also include unpacking and stowing the basic issue items that accompany the 3 kW Skid Mounted, Tactical Quiet Generator Set. Also included are instructions on positioning the equipment for operation and connecting an external fuel source.

Field PMCS Introduction. This work package provides a detailed explanation of each table entry in the PMCS table along with applicable warnings, cautions and notes prior to starting on the PMCS procedures.

Field PMCS, Including Lubrication Instructions. This work package contains instructions covering the PMCS that must be performed at the field maintenance level. A table provides information on maintenance intervals and actions required. This work package also lists the applicable references that contain lubrication instructions for your equipment

Field Maintenance Procedures. These work packages list the applicable references that cover field maintenance of the equipment.

Preparation for Storage or Shipment. This work package provides information on short-term, intermediate-term, and long-term storage.

Illustrated List of Manufactured Items. These work packages provide precise, detailed instructions, patterns and illustrations that field maintenance level technicians will be required to follow in order to make wires of measured lengths, and wire harnesses with plugs and connectors properly spaced, fastened and fully-functioning. As items authorized to be manufactured or fabricated and in compliance with the Two-Level Maintenance (2LM) concept.

Torque Limits. This work package lists standard torque values for bolts and screws used in maintaining the equipment.

Chapter 7 - Parts Information

This chapter contains Repair Parts and Special Tools Lists (RPSTL) needed to perform operator and field maintenance of the equipment. The chapter is divided as follows:

Repair Parts List. These work packages contain illustrations and lists. The illustrations aid in identifying the parts. The lists include information that tells which maintenance levels are authorized to use the part, the part number that identifies the part, the name of the part, and the quantity used.

Special Tools List. This work package informs the user that no special tools are needed.

National Stock Number (NSN) Index. This work package lists all of the parts contained in Repair Parts Lists. The NSN index is in National Item Identification Number (NIIN) sequence.

Part Number Index. These work packages lists all of the parts contained in Repair Parts Lists. The part number index is in alphanumeric part number sequence.

HOW TO USE THIS MANUAL – CONTINUED

Chapter 8 - Supporting Information

The chapter is divided as follows:

References. This work package lists all publications referenced in the various chapters of the technical manual. The listing includes the title and document number of each publication.

Introduction for Standard Two-Level MAC. This work package explains what is covered in the maintenance allocation chart.

Standard Two-Level MAC. This work package has three sections, as follows:

Maintenance Allocation Chart (MAC). Table 1 contains a tabular listing that assigns maintenance functions to specific maintenance levels. It lists the work time needed to perform each maintenance function at the assigned level. It also contains a column that has entries keyed to the tools and equipment listed in Table 2. Another column has entries keyed to the remarks in Table 3.

Tool and Test Equipment Requirements. Table 2 contains complete identification information for the items referenced in the tools and equipment column of Table 1.

Remarks. Table 3 provides additional information for each entry in the remarks column of Table 2.

Components of End Item (COEI) and Basic Issue Items (BII) Lists. This work package lists the items usually packaged separately but needed for installation and operation of the equipment. The work package has three sections, as follows:

Introduction. This section explains the entries in Tables 1 and 2.

Components of End Item. The equipment is normally shipped fully assembled, so this section is not applicable.

Basic Issue Items. This section contains a list of the accessories needed for installation and operation of the equipment.

Additional Authorization List (AAL). This work package lists additional items you are authorized for support of the equipment. This work package contains two sections, as follows:

Introduction. This section explains the entries in Tables 1.

Additional Authorized Items List. This table lists the Additional Authorized Items.

Expendable and Durable Items List. This work package lists expendable/durable supplies and materials needed to operate and maintain your equipment. The work package contains two sections, as follows:

Introduction. This section explains the entries in Tables 1.

Expendable and Durable Items List. The list indicates the maintenance level that needs each item and identifies the items by National Stock Number (NSN), description, and unit of measure.

Mandatory Replacement Parts List. This work package lists all parts used on the equipment that must be discarded when removed during maintenance and installed new.

HOW TO FIX AN EQUIPMENT MALFUNCTION

Determining the Cause

Finding the cause of a malfunction, troubleshooting, is the first step in fixing your equipment and returning it to operation. Follow these simple steps to determine the root of the problem:

1. Turn to the Table of Contents in this manual.
2. Locate "Troubleshooting" under the chapter that covers your level of maintenance. Turn to the page indicated.
3. For operator troubleshooting, follow the instructions in the references listed in Chapter 3.
4. For troubleshooting at the field level, find the malfunction listing in Chapter 5. Follow the instructions provided as indicated by the symptom index.

Preparing for a Task

Be sure that you understand the entire maintenance procedure before beginning any maintenance task. Make sure that all parts, materials, and tools are handy. Read all steps before beginning.

HOW TO USE THIS MANUAL – CONTINUED

Prepare to do the task as follows:

1. Carefully read the entire task before starting. It tells you what you will need and what you have to know to start the task. **DO NOT START THE TASK UNTIL:**
 - a. You know what is needed
 - b. You have everything you need
 - c. You understand what to do
2. If parts are listed, they can be drawn from technical supply. Before you start the task, check to make sure you can get the needed parts. National stock numbers (NSNs) and part numbers for 3 kW Skid Mounted, Tactical Quiet Generator Set parts are listed in the Repair Parts and Special Tools List (RPSTL).
3. If expendable/durable supplies or materials are needed, get them before starting the task. Refer to WP 0136 for the correct nomenclature and NSN.

How to Do the Task

Before starting, read the entire task. Be sure that you understand the entire procedure before you begin the task.

As you read, remember the following:

1. **PAY ATTENTION TO WARNINGS, CAUTIONS, AND NOTES.**
2. Use the List of Abbreviations/Acronyms if you do not understand the special abbreviations or unusual terms used in this manual.
3. The following are standard maintenance practices. Instructions about these practices are usually not included in task steps. When standard maintenance practices do not apply, the task steps will tell you.
 - a. Tag electrical wiring before disconnecting it.
 - b. Discard used preformed packing, retainers, gaskets, cotter pins, lockwashers, and similar items. Install new parts to replace the discarded items.
 - c. Coat packing before installation, in accordance with the task instructions.
 - d. Disassembly procedures describe the disassembly needed for total authorized repair. You may not need to disassemble an item as far as described in the task. Follow the disassembly steps only as far as needed to repair/replace worn or damaged parts.
 - e. Clean the assembly, subassembly, or part before inspecting it.
 - f. Before installing components having mating surfaces, inspect the mating surfaces to make sure they are in serviceable condition.
 - g. Hold the bolt (or screw) head with a wrench (or screwdriver) while tightening or loosening a nut on the bolt (or screw).
 - h. Torque to the special torque cited when the task instructions include the words "torque to." Use standard torques at all other times.
 - i. When a cotter pin is required, align the cotter pin holes within the allowable torque range.
 - j. Inspect for foreign objects after performing maintenance.

CHAPTER 1

OPERATOR AND FIELD GENERAL INFORMATION, EQUIPMENT DESCRIPTION AND THEORY OF OPERATION

GENERAL INFORMATION

SCOPE

This manual provides instructions on operating, troubleshooting, and maintaining the 3 kW Tactical Quiet Generator Set, MEP-831A (60 Hz), (NSN: 6115-01-285-3012), and MEP-832A (400 Hz), (NSN: 6115-01-287-2431). Information is provided on principles of operation, controls and indicators, Preventive Maintenance Checks and Services (PMCS), lubrication, operation, troubleshooting, and maintenance. See Figure 1 for a full-view illustration of the generator set, showing features pertinent to set operation and maintenance.

In addition to describing operating instructions, operator service and field support maintenance instructions, this manual contains a Repair Parts and Special Tools List (RPSTL) contained in WP 0088 through WP 0130.

See TM 9-2815-257-24 for detailed information regarding operation and maintenance of the Diesel Engine Assembly, Model Number L70AE-DEGFR, (NSN: 2815-01-465-5993) and L70N6EZ0T9EAFD (NSN: 2815-01-660-5994), manufactured by Yanmar Diesel Engine Company, Ltd.

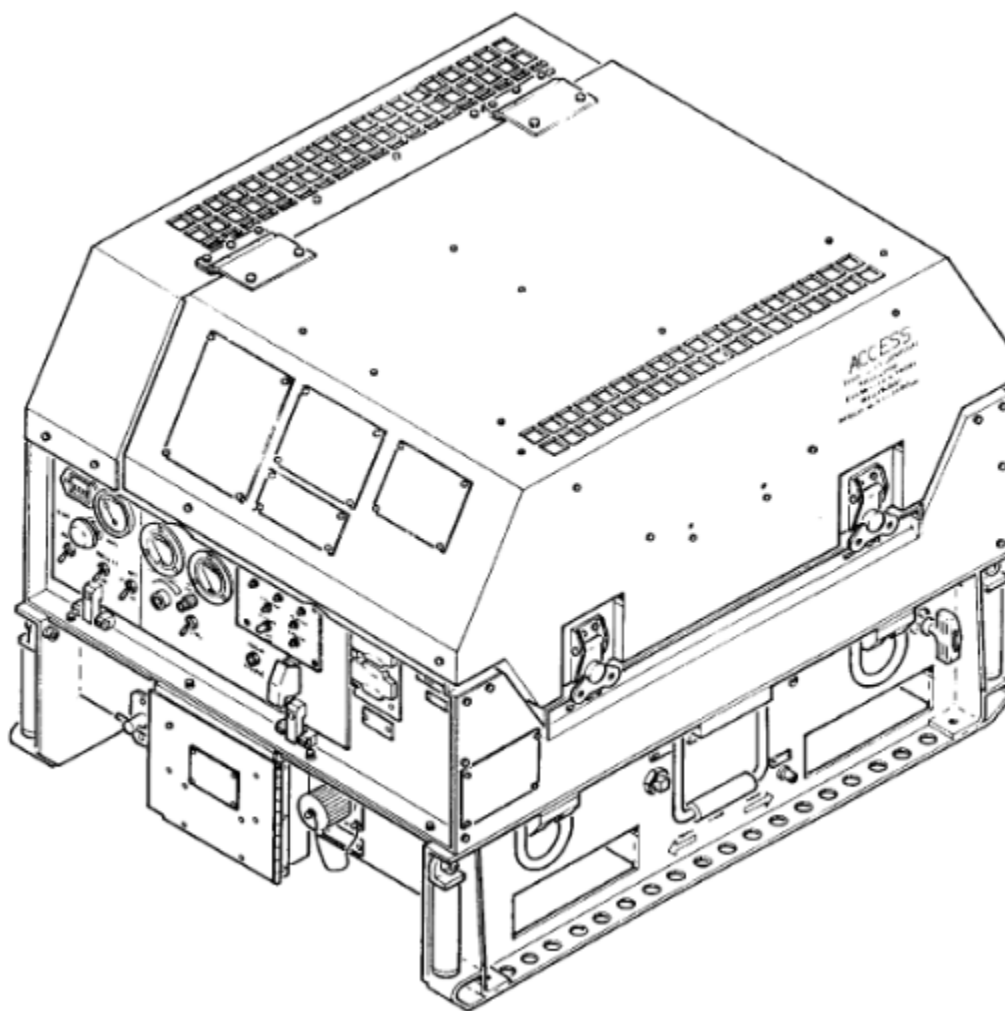


Figure 1. 3 kW Tactical Quiet Generator Set.

MAINTENANCE FORMS, RECORDS, AND REPORTS

(A) Department of the Army forms and procedures used for equipment maintenance will be those prescribed by (as applicable) DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual; DA PAM 738-751, Functional Users Manual for the Army Maintenance Management Systems - Aviation (TAMMS-A); or AR 700-138, Army Logistics Readiness and Sustainability.

(MC) Maintenance forms and records used by Marine Corps personnel are prescribed by TM 4700-15/1.

(F) Maintenance forms and records used by Air Force personnel are prescribed in AFI 21-101 and the applicable TO 00-20 Series Technical Orders.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your 3kW Tactical Quiet Generator Set MEP-831A (60 Hz) or MEP-832A (400 Hz) needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. If you have Internet access, the easiest and fastest way to report problems or suggestions is to follow the instructions and links below:

If you have a user's account you can submit the PQDR for ALL CECOM (B16) Warranty, EIR and PQDRs (including those B16 Aviation related) through the Navy's Web Product Quality Deficiency Reporting (PQDR) site, https://www.pdrep.csd.disa.mil/pdrep_files/report_tools/pqdr.htm. If you do not, either go to EZ PQDR, <https://pdrep.csd.disa.mil/pdrep/ezdr.doc>, and input your PQDR there or establish a new account. New accounts can be established at https://www.pdrep.csd.disa.mil/pdrep_files/accessforms/useraccess.htm and selecting the "User Access Request" link on the left side of the web page.

CECOM (B16) aviation PQDRs will not go to AMCOMs Joint Deficiency Reporting System (JDRS). If AMCOM should get a CECOM aviation PQDR they will re-direct it to the CECOM PQDR Team.

Use the PQDR for Warranties, EIRs and PQDRs. There is a block on the PQDR that can be clicked if it is a Warranty. The originator can still put in the description that they want this investigated as an EIR and then enter what the issue is.

You may also submit your SF 368 (Product Quality Deficiency Report) via email (usarmy.apg.cecom.mbx.lrc-leo-b16-pqdr-support-team@mail.mil), facsimile (443-861-6356) or regular mail (call 443-861-6310 or 443-861-6311 or 443-861-6312) for the current mailing address).

We will send you a reply.

For Marine Corps users: Quality deficiency reports (QDR) shall be submitted on SF 368 in accordance with MCO 4855.10. A reply will be furnished to you.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

Corrosion specifically occurs with metals. It is an electrochemical process that causes the degradation of metals. It is commonly caused by exposure to moisture, acids, bases, or salts. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking.

Plastics, composites, and rubbers can also degrade. Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light, typically UV) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking.

SF Form 368, Product Quality Deficiency Report should be submitted to the address specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual. Air Force personnel will use TO 35-1-3.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

For destruction of Army materiel to prevent enemy use, see TM 750-244-3.

Destruction of Air Force materiel to prevent enemy use shall be IAW AFI 33-201>.

Destruction of Marine Corps materiel to prevent enemy use shall be IAW MC direction.

DEMOLITION OF MARINE CORPS MATERIEL TO PREVENT ENEMY USE

Demolition to Render the Generator Set Inoperative

1. When capture or abandonment of the generator set to an enemy is imminent. The responsible unit commander must make the decision to either destroy or render the equipment inoperative.
2. Based on this decision, orders are issued which cover the desired extent of destruction.
 - a. Operators should be thoroughly familiar with all methods of destruction without referencing any particular manual.
 - b. Demolition of the generator set can be accomplished by explosives, fire, or tools such as a sledge hammer, pick, or ax. Demolition can also be accomplished by misuse.
3. The method used will depend on the time available and the availability of these materials in the vicinity of the generator set.
4. Demolition by mechanical means.
 - a. Use hammer, pick, ax, or any other available tool to destroy vital engine and control parts.
 - b. Control box, fuel injection lines, and the radiator should be smashed, engine and control box wires should be pulled and cut, and any other external engine components (fuel filter, alternator) should be damaged enough to make them inoperable.
5. Demolition by misuse.
 - a. Drain diesel generator crankcase oil.
 - b. Block diesel generator engine air supply ports.
 - c. Start diesel generator engine and allow it to operate until it fails.
 - d. Switch Battleshort into the ON position.
 - e. Pour sand, dirt, or other available abrasive compound in all exposed surfaces and access ports of the diesel engine and generator.
 - f. Drain engine coolant.
6. Demolition by burning. Complete as much mechanical damage as possible, and then saturate unit with flammable fuel and ignite.
7. Demolition by explosives. Place explosive charges in priority order (Table 2).

Table 1. Demolition Priority Levels.

PRIORITY LEVEL	COMPONENT	EXPLOSIVE CHARGE REQUIRED
1	Generator Engine	1 lb (0.45 kilograms (kg))
2	Control Box	1 lb (0.45 kg)
3	Generator Housing	1 lb (0.45 kg)
4	Housing/Structure	2 lb (0.90 kg)

PREPARATION FOR STORAGE OR SHIPMENT

Administrative storage of equipment issued to and used by Army activities will have Preventive Maintenance Checks and Services (PMCS) performed before storing. When removing the equipment from administrative storage, the PMCS checks should be performed to assure operational readiness.

PREPARATION FOR STORAGE OR SHIPMENT – CONTINUED

Requirements for packaging, preservation, and administrative storage are in WP 0083. See also WP 0083 for TB 740-97-2, Preservation of USAMECOM Mechanical Equipment for Shipment and Storage.

WARRANTY INFORMATION

This section provides information on manufacturer's warranties for generator set components. The warranty period begins on the date of end item shipment to the government, as defined by the warranty date, unless otherwise noted in Table 1.

Components for the 3kW TQG are warranted in accordance with the component manufacturer's latent defect commercial warranty. The warranty starts on the date found in block 23, DA Form 2408-9, in the log book. Report all defects in material and workmanship to your supervisor, who will take appropriate action. See Table 1 for information on manufacturer's component warranties and conditions.

Warranty service may be obtained with two methods: (1) by contacting the actual warranted component manufacturer listed in Table 1, column 1 (each manufacturer will provide instructions on filing a claim) or (2) by filling out a Warranty Claim in accordance with DA PAM 750-8. The Warranty Claim form is SF 368, Product Quality Deficiency Report.

Troubleshooting should be performed to the level of warranted component, but no further. Troubleshooting to the failed part inside warranted components may invalidate the warranty.

If you have difficulty with or questions about the warranty process, contact your local CECOM LAR or the CECOM Generator Branch, DSN 992-1313, (732) 532-1313.

Table 2. Manufacturers Warranties.

(1) MANUFACTURER	(2) COMPONENT UNDER WARRANTY	(3) WARRANTY PERIOD
DRS Fermont 141 North Avenue Bridgeport, CT 06606 Phone: 203-366-5211, x25395 Fax: 203-367-3642 CAGE: 93742 - - - Or - - -	Alternator Assembly, 3 kW Permanent Magnet PN: 98-19634, VPN: 692497	1 Year or 1800 Hours
C. E. Neifoff 2021 Lee St. Evanston, Ill 60202 Phone: 847-866-6030 Fax: 847-492-1242 CAGE: U8467	Alternator Assembly, 3 kW Permanent Magnet PN: 98-19634, VPN: 692497	1 Year or 1500 Hours
Technology Research Corporation (TRC) 5250 140th Avenue North	Frequency Converter (A8), 60 Hz (PN: 98-19604-01, VPN: 29350)	18 months (PN: 98-19604-01)

WARRANTY INFORMATION – CONTINUED

Table 2. Manufacturers Warranties. – Continued

(1) MANUFACTURER	(2) COMPONENT UNDER WARRANTY	(3) WARRANTY PERIOD
Clearwater, FL 33760 Phone: 727-535-0572, ext. 20369, or 727-812-0629 Fax: 727-535-9691 CAGE: 60177	Frequency Converter (A8), 400 Hz (PN: 98-19604-02, VPN: 29340) Regulator, Battery Charger (PN: 98-19626, VPN: 29380) Module, Fault Indicator (PN: 98-19527, VPN: 29390) Interrupter, Ground Fault (PN: 19541, VPN: 29410)	18 months (PN: 98-19604-02) 1 Year (PN: 98-19626) 1 Year (PN: 98-19527) 1 Year (PN: 19541)
Bell Power Systems (for Yanmar) 36 Plains Road Essex, CT 06426 Phone: 1-800-225-8669, ext. 1428 Fax: 860-767-7290 CAGE: S4163	Engine, Diesel (PN: 98-19513, VPN: L70AE-DEGFR) Engine, Diesel (PN: 98-19513, VPN: L70N6EZ0T9EAFD)	1 Year from date of manufacture
Knight Electronics / Orion Fans 10557 Metric Dr. Dallas, TX 75243 Attention: VP Operations Phone: 214-340-0265 Fax: 214-340-5870 CAGE: IVELS	Fan, 115 VAC, 60 Hz (PN: 98-19512-01, VPN: 031842) Fan, 24 VDC (PN: 98-19512-02, VPN: 031843)	1 Year
Governors America Corporation 720 Silver Street Agawam, MA 01001 Phone: 413-233-1819 Fax: 413-789-7736 CAGE: 0BXW5	Actuator, Governor, 24 VDC (PN: 98-19580, VPN: ACD150) Controller, Governor, 24 VDC (P/N 98-19539, VPN: SLC100)	2 Years
Nelson Global Products 1560 Williams Dr. Stoughton, WI 53589 Phone: 608-719-1752 CAGE: 0TW02	Muffler Assembly, Exhaust (PN: 98-19607, VPN: 27053N)	1 Year
Madison Company 27 Business Park Drive		

WARRANTY INFORMATION – CONTINUED**Table 2. Manufacturers Warranties. – Continued**

(1) MANUFACTURER	(2) COMPONENT UNDER WARRANTY	(3) WARRANTY PERIOD
Branford, CT 06405 Phone: 203-488-4477, x103 Fax: 203-481-5036 CAGE: 21603	Switch, Fuel Level (PN: 98-19519, VPN: M3770)	1 Year from date of shipment from Madison
Purolator Products, Inc. via Fidelity Technologies Corporation 2501 Kutztown Road Reading PA 19605-2961 Phone: 610-929-3330 Ext 274 Fax: 610-921-9447 CAGE: OCJZ9	Pump, Fuel Auxiliary (PN: 88-21738, VPN: 40194)	1 Year from date of shipment
Contact Industries Inc. 25 Lex-Industrial Drive, P.O. Box 3086 Lexington, OH 44904 Attention: Quality Mgr. Phone: 419-884-9788 Fax: 419-884-9767 CAGE: 01XD4	Contactor, 2-Pole, 100 Amp (PN: 98-19755, VPN: CT100D24C1S)	1 Year

Shortened nomenclature is used in this manual to make procedures easier for you to read. The list below is a cross-reference between the shortened nomenclature and the official nomenclature.

NOMENCLATURE CROSS-REFERENCE LIST

Common Name	Official Nomenclature
Generator Set	3 kW Tactical Quiet Generator Set, MEP-831A (60 Hz) and MEP-832A (400 Hz)
MEP-831A	Generator Set, 3 kW, 60 Hz
MEP-832A	Generator Set, 3 kW, 400 Hz

LIST OF ABBREVIATIONS/ACRONYMS

Abbreviation/Acronym	Definition
A2	Fault Indicator Module
A5	Governor Control
AAL	Additional Authorization List
AC	Alternating Current

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

AFB	Air Force Base
AFR	Air Force Regulation
AFTO	Air Force Task Order
ALC	Air Logistics Center
AOAP	Army Oil Analysis Program
AR	Army Regulation
ATLASS	Asset Tracking Logistics and Supply System
App	Appendix
BII	Basic Issue Items
BT	Battery/Battery Terminal
C	Centigrade
CAGEC	Commercial and Government Entity Code
CARC	Chemical Agent Resistive Coating
CB1	DC Circuit Breaker
CB3	GFCI (60 Hz only)
CBRN	Chemical, Biological, Radioactive, or Nuclear
CECOM	Communications and Electronics Command
CN	Components of End Item
CPC	Corrosion Prevention and Control
CTA	Consolidated Table of Allowance
DA	Department of the Army
DC	Direct Current
DLAR	Defense Logistics Agency Regulation
DS2	Decontaminating Solution 2
DS6	AC Circuit Interrupter Indicator
DSN	Defense Switched Network
ECP	Engineering Change Proposal
EIC	End Item Code/Equipment Item Code
EIR	Equipment Improvement Recommendation
EMI	Electromagnetic Interference
ESD	Electrostatic Discharge

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

F	Fahrenheit
FL	Fuel Level Switch
FM	Field Manual
FO	Foldout
GFCI	Ground Fault Circuit Interrupter
GND	Ground
HP	Horsepower
HT	Engine Temperature Switch
Hg	Mercury
Hz	Hertz
IPB	Illustrated Parts Breakdown
IUID	Item Unique Identification
J1	Convenience Receptacle
JTA	Joint Table(s) of Allowance
L1	AC output terminal 1 (load)
L2	AC output terminal 2 (load)
LOEP	List of Effective Pages
LOG/TP	Logistics/Technical Publication
M1	Voltage Meter
M2	Load Meter
M3	Hours Meter
M5	Fuel Level Meter
MAC	Maintenance Allocation Chart
MCO	Marine Corps Order
MCPDS	Marine Corps Publication Data System
MEP	Mobile Electric Power
MIL	Military
MIL-HDBK	Military Handbook
MST	Maintenance Support Team
MT5	Fuel Level Sender
MTOE	Modified Table of Organization and Equipment

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

N	Neutral
NATO	North Atlantic Treaty Organization
NAVMC	Navy Marine Corps
NAVSUPINST	Naval Supplementary Instruction
NSN	National Stock Number
OEA	Office of Energy Assurance
OP	Oil Pressure/Low Oil Pressure Switch
OSHA	Occupational Safety and Health Act
P/N	Part Number
P/O	Part of
PMCS	Preventive Maintenance Checks and Services
PQDR	Product Quality Deficiency Report
Pam	Pamphlet
QC	Quality Control
QDR	Quality Deficiency Report
QTY	Quantity
R1	Voltage Adjust Potentiometer
ROD	Report of Discrepancy
RPM	Revolutions per Minute
RPSTL	Repair Parts and Special Tools List
RTV	Room Temperature Vulcanizing
S1	START/RUN/STOP Switch
S17	AUX Fuel Switch
S18	PREHEAT Switch
S19	EMERGENCY STOP button
S20	Temperature Switch
S21	Temperature Switch
S5	Circuit Interrupter Switch
S7	Battle Short Switch
SAE	Society of Automotive Engineers
SDR	Supply Discrepancy Report

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

SE	Support Equipment
SECNAVINST	Secretary of the Navy Instruction
SF	Standard Form
SMR	Source, Maintenance, and Reliability
SOS	Source of Supply
SPAWAR	Space and Naval Warfare Center
SR1	NATO Slave Receptacle
SRA	Specialized Repair Activity
STB	Supertropical Bleach
TAMMS	The Army Maintenance Management System
TB	Technical Bulletin/Terminal Board
TDA	Table of Distribution and Allowances
TDR	Transportation Discrepancy Report
TM	Technical Manual
TMDE	Test, Measurement, and Diagnostic Equipment
TO	Task Order (Air Force)
TOE	Table of Organization and Equipment
TQG	Tactical Quiet Generator
U.S./US	United States
UM	Unit of Measure
USAMECOM	U.S. Army Mobile Equipment Command
UUT	Unit Under Test
V	Volt
VAC	Volts Alternating Current
VDC	Volts Direct Current
cm	Centimeter
dBA	Decibels referred to 1 kilowatt
ft	Foot
kW	Kilowatt
kg	Kilogram
ml	Milliliter

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

psi Pounds per Square Inch

QUALITY OF MATERIAL

Material used for replacement, repair, or modification must meet the requirements of this technical manual. If quality or material requirements are not stated in this technical manual, the material must meet the requirements of the drawings, standards, specifications, or approved Engineering Change Proposals (ECPs) applicable to the subject equipment.

SAFETY, CARE, AND HANDLING

To prevent personal injury and damage to equipment, obey the following general rules and precautions:

1. Familiarize yourself with the Warnings and Cautions listed in this manual.
 - a. Warnings - Present circumstances or procedures, which if not strictly adhered to may cause injury or death.
 - b. Cautions - Present circumstances, which can cause damage to equipment or loss of mission.
2. Turn off all power before starting any removal task.
3. Do not touch connector terminals with any tool, bare hands, or a dirty cloth. Tools will damage the connector. Dirt or sweat will cause corrosion.
4. Ground your body to discharge static electricity by touching a metal chassis or cabinet before touching an electrical component. A static discharge to an electrical component can destroy internal circuits.
5. Know where emergency equipment is located. Read instructions on fire extinguisher label.
6. Make sure hands, hair, clothing, and shoes are clean before working on equipment.

The following general precautions and safety regulations will be prepared: Electrostatic Discharge (ESD) control standards for the protection of electrical and electronic parts, assemblies, and equipment will be prepared. ESD classes will be identified. See MIL-STD-1686 and MIL-HDBK-263, which contains ESD control procedures and material necessary to protect these items.

SUPPORTING INFORMATION FOR REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT**Common Tools and Equipment**

For authorized common tools and equipment, see the Modified Table of Organization and Equipment (MTOE), CTA 50-970, or CTA 8-100, as applicable to your unit. Tool Kit, General Mechanics; Automotive, Supply Catalog SC5180-9D-CL-N26, is the primary supply source for tools used in maintenance of the generator set.

Special Tools, TMDE, and Support Equipment

See Chapter 7, Parts Information for complete data on special tools and equipment required for generator set maintenance. See WP 0133, Maintenance Allocation Chart (MAC), for special tools and equipment used at the field maintenance level.

Repair Parts

- a. The two-level maintenance concept requires on-board spares to accompany deployment operations. See WP 0133 for a list of on-board spares required for field level maintenance of the generator set.

**SUPPORTING INFORMATION FOR REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT
– CONTINUED**

- b. Repair parts are listed and illustrated in Chapter 7 - Parts Information of this manual.

END OF WORK PACKAGE

EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES**Characteristics**

The 3 kW generator set has the following characteristics:

- 3 kW, 60 Hz (MEP-831A)/400 Hz (MEP-832A), Tactical Quiet Generator (TQG)
- Skid-mounted with forklift provisions
- Six lifting handles, four tie-down rings
- Hinged enclosure, allowing quick access for preventive and scheduled maintenance
- Thermostatically controlled, two-fan enclosure cooling system
- 24 VDC cranking system
- Single-cylinder, air-cooled, direct-injection, four-stroke-cycle diesel engine
- Permanent Magnet Alternator (PMA) with frequency converter (A8)
- Four-gallon fuel tank (allowing 8 hours of continuous operation at full load)

Capabilities and Features

The 3 kW generator set has the following capabilities and features:

- 3,000 to 3,600 RPM operating speed
- 3.0 kW, 1 phase, 2 wire, 120 VAC or 1 phase, 3 wire, 120/240 VAC
- Rated engine power of 6.7 HP at 3,600 RPM
- Equipped with a 24 VDC NATO slave receptacle
- Equipped with a 2-plug 120 VAC convenience receptacle with Ground Fault Circuit Interrupter (GFCI) for the 120 VAC convenience receptacle (MEP-831A, 60 Hz only)
- Audio noise rating less than 72 dBA at 23 feet from enclosure; less than 85 dBA at operator's position
- Weight: dry (MEP-831A) = 304.0 pounds using L70AE-DEGFR engine and 308.4 pounds using L70N6EZ0T9EAFD engine
- Weight: dry (MEP-832A) = 302.0 pounds using L70AE-DEGFR engine and 306.4 pounds using L70N6EZ0T9EAFD engine
- Weight wet (fuel tank full) = 334.0 pounds using L70AE-DEGFR engine and 338.4 pounds using L70N6EZ0T9EAFD engine
- Dimensions: 34.8 x 27.8 x 26.5 inches

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS**(See Figure 1)**

The 3 kW Tactical Quiet Generator Set, MEP-831A (60 Hz), (NSN: 6115-01-285-3012), and MEP-832A (400 Hz), (NSN: 6115-01-287-2431), hereafter referred to as generator set, is a portable unit capable of being mounted on a trailer for transportation. The generator set is designed to provide a quiet source of AC power under temperature ranges from -25 to +120 °F (-32 to +49 °C), at any level of relative humidity, and at altitudes of up to 8,000 feet (2440 meters) above sea level.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

The generator set consists of the following components: a frame and housing assembly (Figure 1, Item 1); a one-cylinder diesel engine (Figure 1, Item 2); a Permanent Magnet Alternator (PMA) (Figure 1, Item 3); a control box assembly (Figure 1, Item 18); an output/load panel (Figure 1, Item 16); a welded skid base (Figure 1, Item 17); primary and auxiliary fuel systems; an enclosure cooling and ventilation system; an engine exhaust system (Figure 1, Item 20); a 24 VDC battery; and associated wiring harnesses, electrical connectors, and fuel and oil hoses.

Frame and Housing Assembly

The frame and housing assembly (Figure 1, Item 1) contains a control box assembly (Figure 1, Item 18), a cooling air system, and an exhaust assembly (Figure 1, Item 20). It protects the engine, generator, and other internal components from damage. It incorporates fire-retardant, acoustical insulation to reduce noise levels and acts as a shield to reduce electromagnetic pulse effects on generator set components.

A welded skid base (Figure 1, Item 17) provides the main structural support for the generator set. The engine/generator assembly is mounted to the skid base with vibration isolators that isolate engine generated vibrations from the rest of the generator set. The generator set's plastic fuel tank is contained within the skid base, as is the 24 VDC battery.

The skid base contains four swing-out lifting handles (Figure 1, Item 7), two standard lifting handles (Figure 1, Item 9), four tie down rings (Figure 1, Item 8), and two forklift openings (Figure 1, Item 12). An oil drain plug (Figure 1, Item 10) and fuel drain plug (Figure 1, Item 11) protrude through openings on the skid base. A 24 VDC NATO Slave Receptacle (Figure 1, Item 14) and output terminal connections, behind the cover (Figure 1, Item 16), are mounted to the skid base at the rear of the generator set.

A hinged main access cover (Figure 1, Item 4) allows easy access for inspecting and maintaining the generator set. Two latches (Figure 1, Item 6) lock the cover in place when it is closed. Air ducts in the main access cover and enclosure housing allow hot exhaust air to be ventilated.

Cooling System

Air intake openings and engine intake ducts on the main access cover allow for engine cooling, using external air. Two thermostatically controlled fans (Figure 1, Item 5), one mounted in the main access cover and one mounted in the back panel, activate during high temperature conditions to drive hot exhaust air through openings in the cover.

Battery

A 24 VDC battery, mounted in the frame and housing assembly, provides cranking power for the engine as well as DC power for the control system. The battery's location in the frame and housing assembly permits easy servicing. Openings in the main access cover vent escaping battery gases to the atmosphere, preventing gas build-up inside the cover.

Exhaust System

The generator set exhaust system (Figure 1, Item 20) consists of a muffler and exhaust piping. Engine exhaust vents out of the generator set through an opening in the top of the main access cover. Insulating material on exhaust system components protects maintenance personnel against potential burn hazards and reduces heat transfer into the enclosure assembly.

Control Box Assembly

The control box assembly (Figure 1, Item 18) is mounted to the frame and housing assembly (Figure 1, Item 1) at the rear of the generator set. It contains instruments, controls, and indicators required to operate the generator set. It also contains a control panel; a Ground Fault Circuit Interrupter (GFCI), 60 Hz only (Figure 1, Item 13); and a convenience receptacle, 60 Hz only (Figure 1, Item 15). Internal components include the governor control module, control logic relays and diodes, voltage surge arrestors, diagnostic test points, and associated wiring harnesses and electrical connectors.

The control panel portion of the control box assembly (Figure 1, Item 18) is hinged to allow access for testing and maintenance. It has the following instruments and switches: an HOURS meter, a FUEL LEVEL meter, a VOLTAGE meter, a LOAD meter, a START/RUN/STOP switch, an EMERGENCY STOP button, an AUX FUEL switch,

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

a PREHEAT switch, a VOLTAGE ADJUST potentiometer, a CIRCUIT INTERRUPTER switch, a DC CIRCUIT BREAKER switch, a BATTLE SHORT switch, and a fault indicator module. The fault indicator module has lights that indicate the following generator set conditions: ENGINE HIGH TEMP, LOW OIL PRESSURE, NO FUEL, OVERVOLTAGE, OVERLOAD SHORT CIRCUIT, and BATTLE SHORT ON. See WP 0004 for a complete explanation of each instrument and switch.

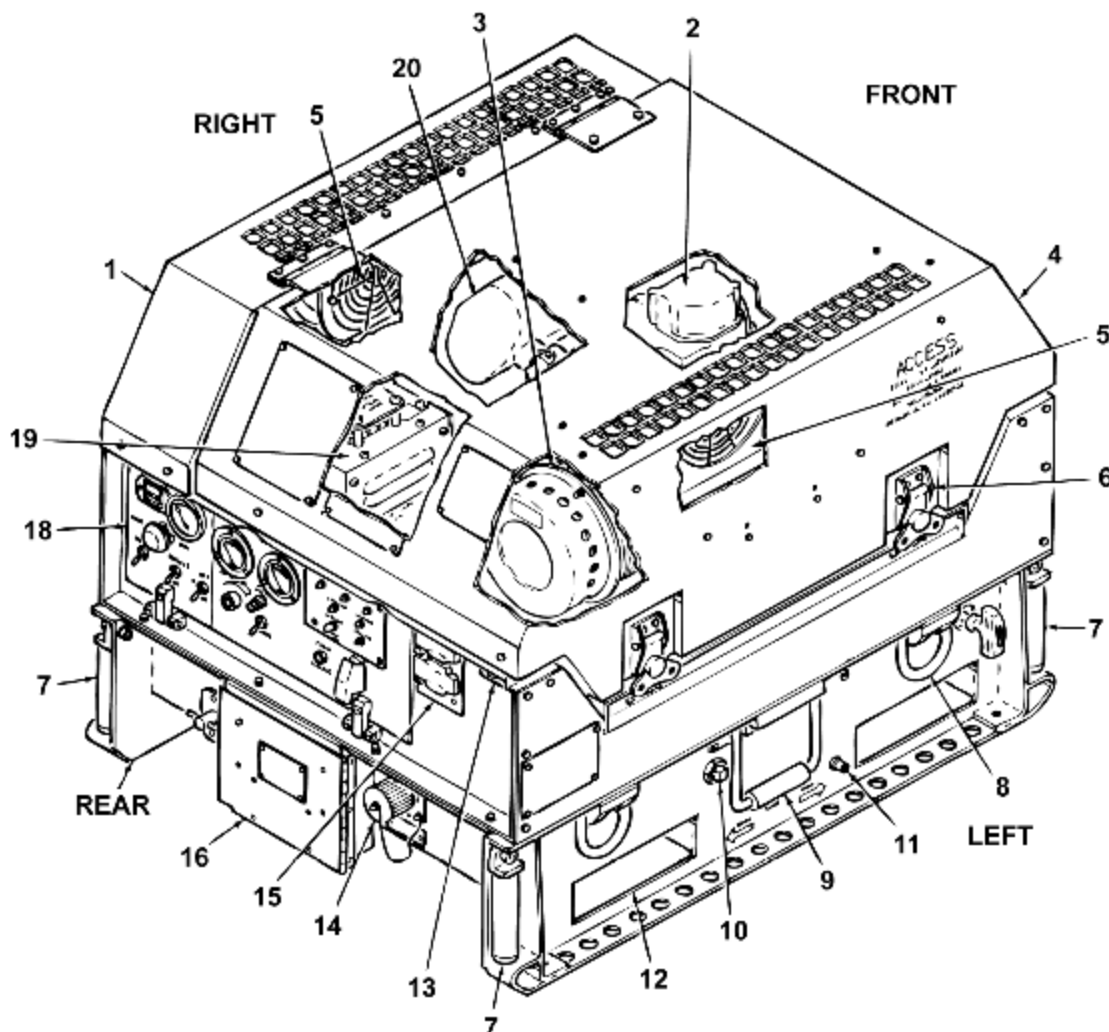


Figure 1. Location of Generator Set Components.

Table 1. Figure 1 Legend.

ITEM	DESCRIPTION
1	Frame and Housing Assembly
2	Diesel Engine Assembly
3	Permanent Magnet Alternator (PMA)
4	Main Access Cover
5	Cooling Fan

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED**Table 1. Figure 1 Legend. – Continued**

ITEM	DESCRIPTION
6	Cover Latch
7	Lifting Handle
8	Tie-Down Ring
9	Lifting Handle
10	Oil Drain Plug
11	Fuel Drain Plug
12	Forklift Opening
13	GFCI (60 Hz only)
14	NATO Slave Receptacle
15	Convenience Receptacle (60 Hz only)
16	Output/Load Terminal Cover
17	Welded Skid Base
18	Control Box Assembly
19	Frequency Converter (A8)
20	Exhaust System

Receptacle, Filter, and Terminals

The output terminal board and ground terminal are located on the generator set skid base, just below the control box assembly (Figure 1, Item 18). A hinged cover (Figure 1, Item 16) allows access to the three output terminals and single ground terminal. An insulated wrench (load wrench), used for connecting wires to the terminals, is secured to the hinged main access cover. A filter mounted to the front of the output terminals prevents Electro-magnetic Interference (EMI). The generator set's 24 VDC NATO Slave Receptacle (Figure 1, Item 14) is mounted to the skid base (Figure 1, Item 17), to the right of the output terminal board.

Diesel Engine/Generator Assembly

The engine/generator assembly (Figure 2) consists of a single-cylinder diesel engine (Figure 2, Item 14); a Permanent Magnet Alternator (PMA) (Figure 2, Item 5); and associated electrical, fuel, and oil components. The engine/generator assembly is mounted to the skid base (Figure 2, Item 8) with vibration mounts (Figure 2, Item 7) to prevent engine vibration from affecting the operation of other generator set components. A fuel drain plug (9) and oil drain plug (Figure 2, Item 10) allow maintenance personnel to drain engine fluids.

Diesel Engine

The generator set is equipped with a single-cylinder, air-cooled, direct-injection, four-stroke-cycle diesel engine (Figure 2, Item 14). The engine is designed to operate between 3,000 and 3,600 RPM, with an output of 6.7 HP at 3,600 RPM. See TM 9-2815-257-24.

The engine has self-contained oil lubrication and fuel systems. A mechanical governor actuator (Figure 2, Item 13) is set for 3,750 RPM, maximum, and is controlled by an electrical governor for variable speed operation. The engine is equipped with an air filter (Figure 2, Item 2), a muffler (Figure 2, Item 3), a 24 VDC starter motor (Figure 2, Item 4), a manifold heater (Figure 2, Item 15), an engine high-temperature switch (Figure 2, Item 6), an engine oil low-pressure switch (Figure 2, Item 12), and an oil fill cap and gauge (Figure 2, Item 11). A rope-pull recoil starter system (Figure 2, Item 1) allows for manual starting of the engine.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Engine cooling is provided by a flywheel fan, which forces air over the cylinder fins and engine components. The fan is completely guarded to prevent inadvertent contact during operation.

Permanent Magnet Alternator (PMA)

The PMA (Figure 2, Item 5) consists of **four 3-phase isolated AC output windings**. Voltage output is proportional to engine speed (approximately 190 VAC at 3 kW, 3,450 RPM). The rotating portion of the PMA is mounted directly to the engine, on the engine crankshaft extension, without a bearing. The PMA stator is directly mounted to the engine and uses Class H insulation.

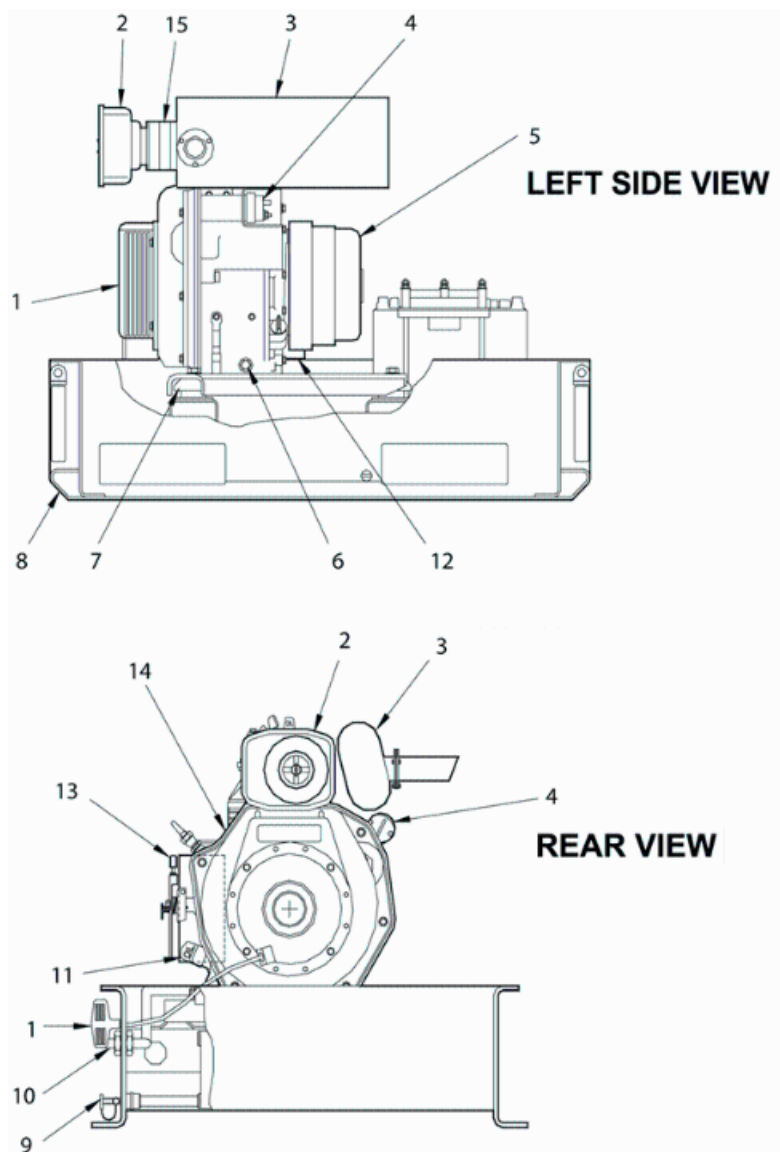


Figure 2. Diesel Engine/Generator Assembly (Sheet 1 of 2).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

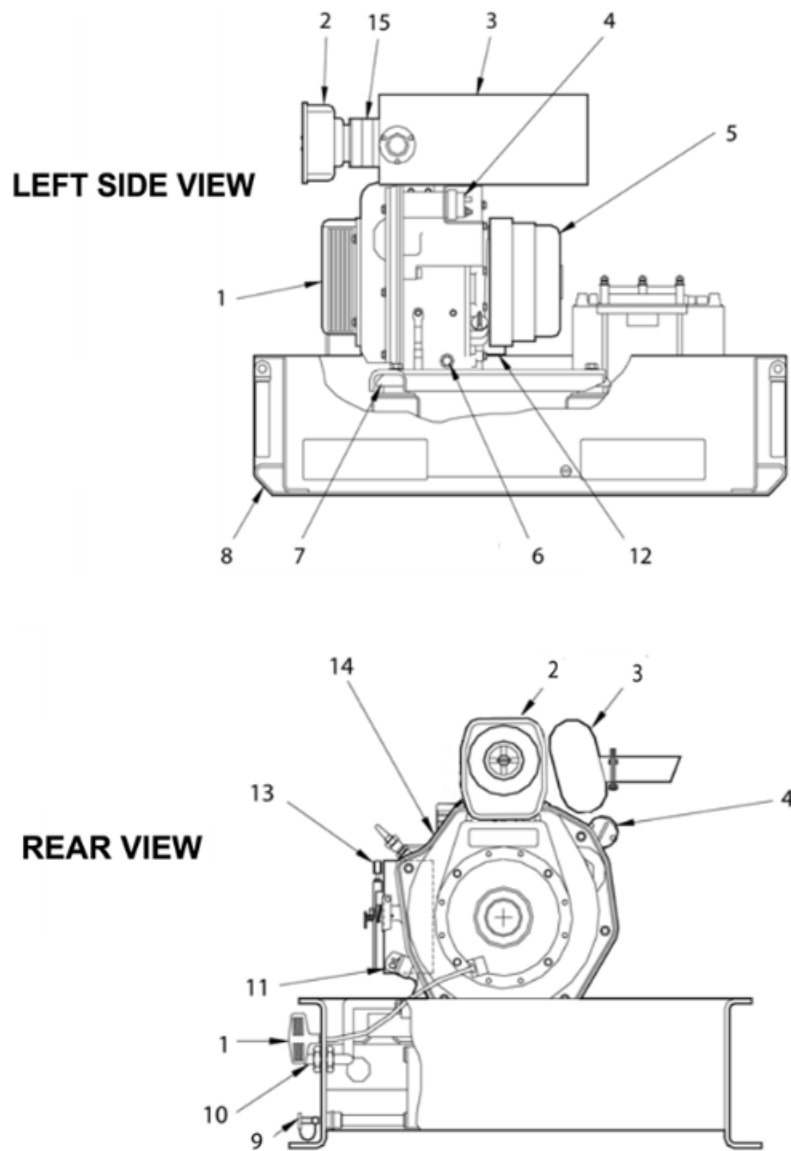


Figure 2. Diesel Engine/Generator Assembly (Sheet 2 of 2).

Table 2. Figure 2 Legend.

ITEM	DESCRIPTION
1	Recoil System
2	Air Filter
3	Muffler
4	Starter Motor
5	Permanent Magnet Alternator (PMA)
6	Temperature Switch

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED**Table 2. Figure 2 Legend. – Continued**

ITEM	DESCRIPTION
7	Vibration Mount
8	Skid Base
9	Fuel Drain Plug
10	Oil Drain Plug
11	Oil Fill Cap/Gauge
12	Oil Pressure Switch
13	Governor Actuator
14	Diesel Engine
15	Manifold Heater

Frequency Converter (A8)

The generator frequency converter (A8) (Figure 1, Item 19) is located in the skid base, between the control box and generator. It consists of rectifiers, a frequency converter (A8), and associated electronics, and it provides the regulated 120 VAC, 2-wire, or 120/240 VAC, 3-wire (single-phase only), output. Voltage regulation is maintained within one percent, throughout specified voltage ranges, from no load to rated load. An output control signal from the converter is connected to the governor control unit to vary engine speed, depending on load condition. This enables the generator set to operate at lower engine speeds for light-load conditions while maintaining the required output voltage.

Fuel System Assembly

The generator set is equipped with a 4-gallon fuel tank (Figure 3, Item 1) that provides enough fuel to operate the unit for 8 hours at full load. The tank is mounted on the skid base. The tank's filler assembly consists of a filler neck (Figure 3, Item 2), a fuel strainer (Figure 3, Item 3), and a vented fill cap (Figure 3, Item 4). The tank contains a fuel pick-up connection (Figure 3, Item 5), a fuel return connection (Figure 3, Item 6), a fuel drain connection (Figure 3, Item 7), a sending unit (Figure 3, Item 8), and a fuel level switch (Figure 3, Item 9).

An electric fuel pump (Figure 3, Item 10) feeds fuel from the tank (Figure 3, Item 1), through a combination fuel filter/water separator (Figure 3, Item 11), into the engine's fuel injection pump (Figure 3, Item 12). The electric fuel pump (Figure 3, Item 10) provides automatic fuel system priming and bleeding. An electronic governor actuator is linked, via a rod, to the fuel injection pump and is used for engine shutdown control.

An auxiliary fuel tank (Figure 3, Item 13) allows the generator set to operate using an auxiliary fuel source. A fuel tank strainer assembly (Figure 3, Item 14) is provided between the auxiliary fuel input connection (Figure 3, Item 15) and the fuel pump. The fuel pump is controlled by the level switch, which allows fuel transfer from the auxiliary fuel source to the generator set fuel tank (Figure 3, Item 1). Auxiliary fuel operations are controlled by the AUX FUEL switch (located on the generator set control panel). See WP 0004 for a complete explanation of each instrument and switch.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

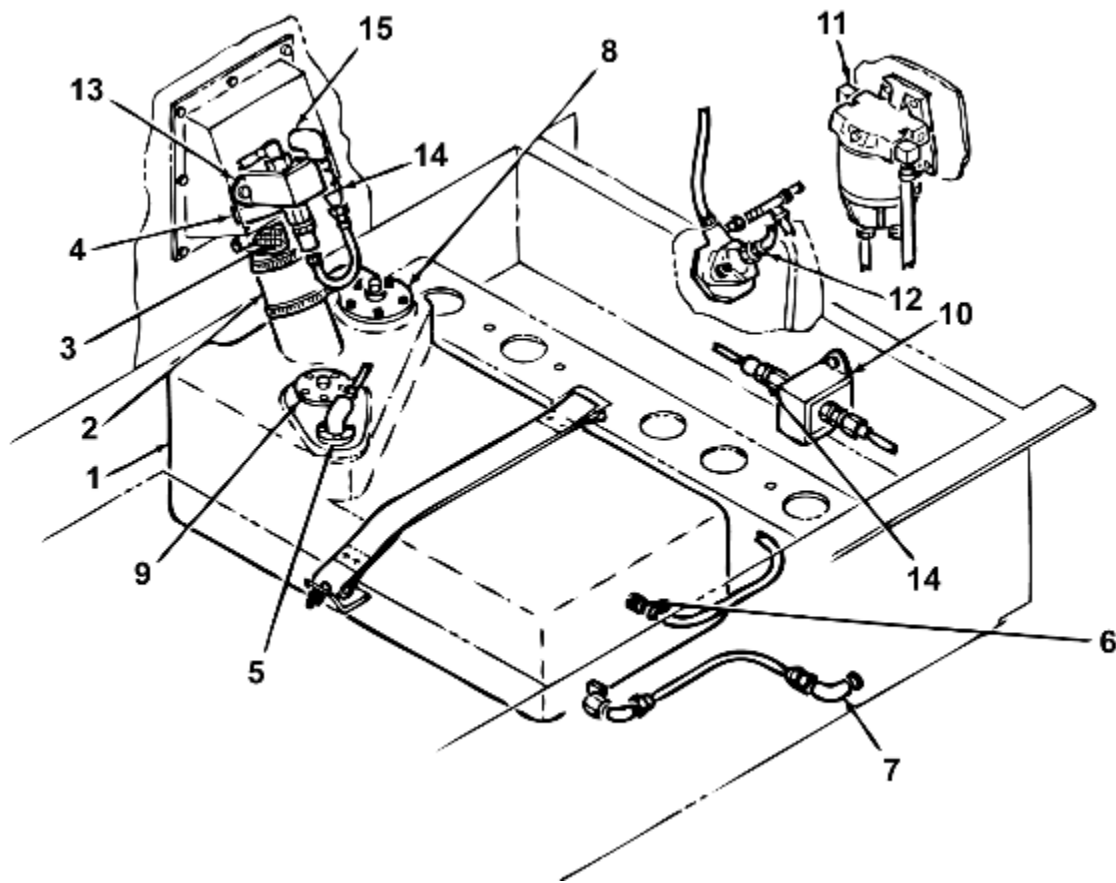


Figure 3. Generator Set Fuel System.

Generator Set Fuel System

Table 3. Figure 3 Legend.

ITEM	DESCRIPTION
1	Fuel Tank
2	Filler Neck
3	Fuel Strainer
4	Fill Cap
5	Pick-Up Connection
6	Return Connection
7	Drain Connection
8	Sending Unit
9	Fuel Level Switch
10	Electric Fuel Pump
11	Fuel Filter/Water Separator

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED**Table 3. Figure 3 Legend. – Continued**

ITEM	DESCRIPTION
12	Fuel Injection Pump
13	Auxiliary Fuel Tank
14	Fuel Tank Strainer Assembly
15	Auxiliary Fuel Input Connection

DIFFERENCES BETWEEN MODELS

Generator set model MEP-831A operates at a frequency of 60 Hz, and MEP-832A operates at 400 Hz. MEP-831A is equipped with both a Ground Fault Circuit Interrupter (GFCI) (Figure 1, Item 13) and a convenience receptacle (Figure 1, Item 15); however, MEP-832A does not have these components.

EQUIPMENT DATA

See Equipment Data below for a summary of specific capabilities, limitations, and critical data for operating and maintaining the generator set.

Table 4. Equipment Data.**WEIGHTS AND DIMENSIONS**

Weight (dry) (MEP-831A)	304.0 pounds (137.9 kg) using L70AE-DEGFR engine and 308.4 pounds (139.9 kg) using L70N6EZ0T9EAFD engine.
Weight (dry) (MEP-832A)	302.0 pounds (136.9 kg) using L70AE-DEGFR engine and 306.4 pounds (138.9 kg) using L70N6EZ0T9EAFD engine.
Weight (wet) (full fuel tank)	334.0 pounds (151.5 kg) using L70AE-DEGFR engine and 338.4 pounds (153.5 kg) using L70N6EZ0T9EAFD engine.
Length	34.8 inches (88.4 cm)
Width	27.8 inches (70.6 cm)
Height	26.5 inches (67.3 cm)

GENERAL SPECIFICATIONS

Output power source	120 VAC convenience receptacle (60 Hz only)
Alternate starting aid	24 VDC slave receptacle
Battery	24 VDC, lead-acid type
<u>Frequency rating:</u>	
MEP-831A	60 Hz
MEP-832A	400 Hz
<u>Rated voltage:</u>	
1 phase, 2 wire	120 VAC
1 phase, 3 wire	120/240 VAC

EQUIPMENT DATA – CONTINUED**Table 4. Equipment Data. – Continued**

Voltage adjustment range	114 to 126 V for the 120 V connection 228 to 252 V for the 240 V connection
Current output	31 Amps for 120 V 16 Amps for 120/240 V
Audio noise rating	72 dBA (max) at 23 feet (7 meters) from perimeter of set, 47.25 inches (1.2 meters) above ground 85 dBA (max) at operator's position

FUEL REQUIREMENTSDiesel fuel:

A-A-52557, Type 1-D -25 to +20 °F (-31 to -7 °C)

A-A-52557, Type 2-D +20 to +120 °F (-7 to +49 °C)

Turbine fuel:

MIL-T-83133, JP-8 -25 to +120 °F (-31 to +49 °C)

TRANSPORTATION REQUIREMENTS

Manual transport Up to 6 personnel required (handles provided)

Truck, rail, air, and trailer transport 4 tie-down rings provided

Inclined transport angle 25° (max) any direction

PERFORMANCE CHARACTERISTICS**Generator Set**Operating temperature range:

-25 to +120 °F (-32 to +49 °C)

Kilowatt capacity at altitude/temperature:

1,000 ft (718.1 mm Hg) at 107 °F (41.7 °C) 3.0 kW

4,000 ft (656.3 mm Hg) at 95 °F (35.0 °C) 2.7 kW

8,000 ft (564.9 mm Hg) at 95 °F (35.0 °C) 2.3 kW

Output terminals:

Alternating current L1

Alternating current L2

Neutral N

Ground GND

Diesel Engine (Model L70AE-DEGFR)

Manufacturer Yanmar Diesel Engine Co., Ltd.

Weight (dry) 86.0 pounds (39.0 kg)

Length 15.08 in. (38.3 cm)

Width 16.58 in. (42.1 cm)

Height 17.72 in. (45.0 cm)

Horsepower (at operating speed) 6.7 horsepower

Operating RPM 3,000 to 3,600 RPM

EQUIPMENT DATA – CONTINUED**Table 4. Equipment Data. – Continued**

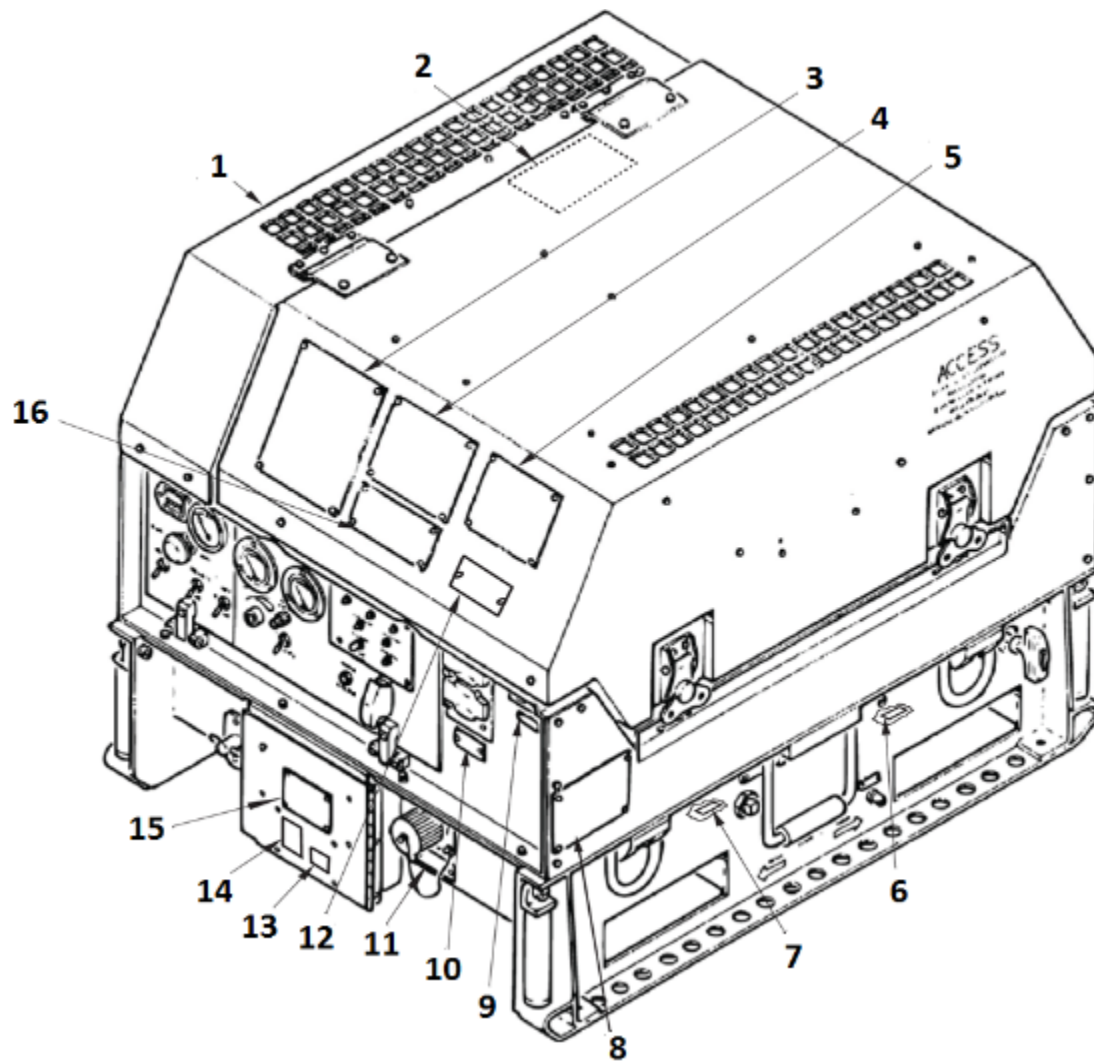
Maximum RPM	3,800 RPM
No load RPM (governor controlled)	3,000 to 3,050 RPM
Rated load RPM (governor controlled)	3,400 to 3,600 RPM
Engine cooling system	Forced air cooling
<u>Oil requirements:</u>	
MIL-L-46167, OEA	-25 to +40 °F (-31 to +5 °C)
MIL-L-2104, OE/HDO-15/40	+5 to +120 °F (-15 to +49 °C)
MIL-L-2104, OE/HDO-10	-15 to +40 °F (-26 to +5 °C)
MIL-L-2104, OE/HDO-30	+15 to +90 °F (-9 to +32 °C)
MIL-L-2104, OE/HDO-40	+30 to +120 °F (-1 to +49 °C)
<u>Oil capacity:</u>	
Engine	1.2 qts (1.1 liters)
Oil consumption rate	0.04 ounce (1.18 ml) per hr @ rated load
Compression ratio	19.5
Bore x stroke	3.07x2.44 in. (78 x 62 ml)
Cylinder	1
Displacement	18.1 in. (296 cm)
Diesel Engine Model	
L70N6EZ0T9EAFD Manufacturer	Yanmar Diesel Engine Co., Ltd.
Weight (dry)	90.4 Pounds (41.0 kg)
Length	14.5 in. (35.877 cm)
Width	17.1 in.(43.44 cm)
Height	17.76 in. (45.41 cm)
Horsepower (at operating speed)	6.57 horsepower
Operating RPM	3,000 to 3,600 RPM
Maximum RPM	3,800 +/-30
No load RPM (governor controlled)	3,000 to 3,050 RPM
Rated load RPM (governor controlled)	3,400 to 3,600 RPM
Engine cooling system	Forced air cooling
<u>Oil requirements:</u>	
MIL-L-46167, OEA	-25 to +40 °F (-31 to +5 °C)
MIL-L-2104, OE/HDO-15/40	+5 to +120 °F (-15 to +49 °C)
MIL-L-2104, OE/HDO-10	-15 to +40 °F (-26 to +5 °C)
MIL-L-2104, OE/HDO-30	+15 to +90 °F (-9 to +32 °C)
MIL-L-2104, OE/HDO-40	+30 to +120 °F (-1 to +49 °C)
<u>Oil capacity:</u>	
Engine	1.2 qts (1.1 liters)

EQUIPMENT DATA – CONTINUED**Table 4. Equipment Data. – Continued**

Oil consumption rate (ounces (ml) per hr @ rated load)	0.05 ounce (1.5 ml)
Compression ratio	21.1
Bore x stroke	3.07x2.44 in. (78 x 62 ml)
Cylinder	1
Displacement	19.5 in. (320 cm)

IDENTIFICATION AND INSTRUCTION PLATES

Figure 4 illustrates an overview of data, instruction, and warning plates found on the generator set. Figures 5 through 9 provide details of each plate, as referenced in the legend of Figure 4.

**Figure 4. Generator Set Data, Instruction, and Warning Plates (Overview).**

EQUIPMENT DATA – CONTINUED

Table 5. Figure 4 Legend.

ITEM	DESCRIPTION
1	OE Fuel Capacity (See Figure 5, Item 1, for plate information)
2	OE Oil Capacity (See Figure 5, Item 2, for plate information) L70AE-DEGFR (left) L70N6EZ0T9EAFD (right)
3	OE Operation (See Figure 5, Item 3, for plate information)
4	OE ID Plate (See Figure 6 for plate information)
5	OE Kilowatt Capacity (See Figure 7, Item 1, for plate information)
6	OE Oil Drain (See Figure 7, Item 2, for plate information)
7	OE Fuel Drain (See Figure 7, Item 3, for plate information)
8	OE Battery Connections (See Figure 8, Item 1, for plate information)
9	OE GFCI (See Figure 8, Item 2, for plate information)
10	OE Voltage (See Figure 8, Item 3, for plate information)
11	OE Slave Receptacle (See Figure 8, Item 4, for plate information)
12	OE IUID Plate (See Figure 8, Item 5, for plate information)
13	OE GND (See Figure 9, Item 1, for plate information)
14	OE Terminal Voltage (See Figure 9, Item 2, for plate information)
15	OE High-voltage Caution (See Figure 9, Item 3, for plate information)
16	OE Grounding Caution (See Figure 9, Item 4, for plate information)

EQUIPMENT DATA – CONTINUED

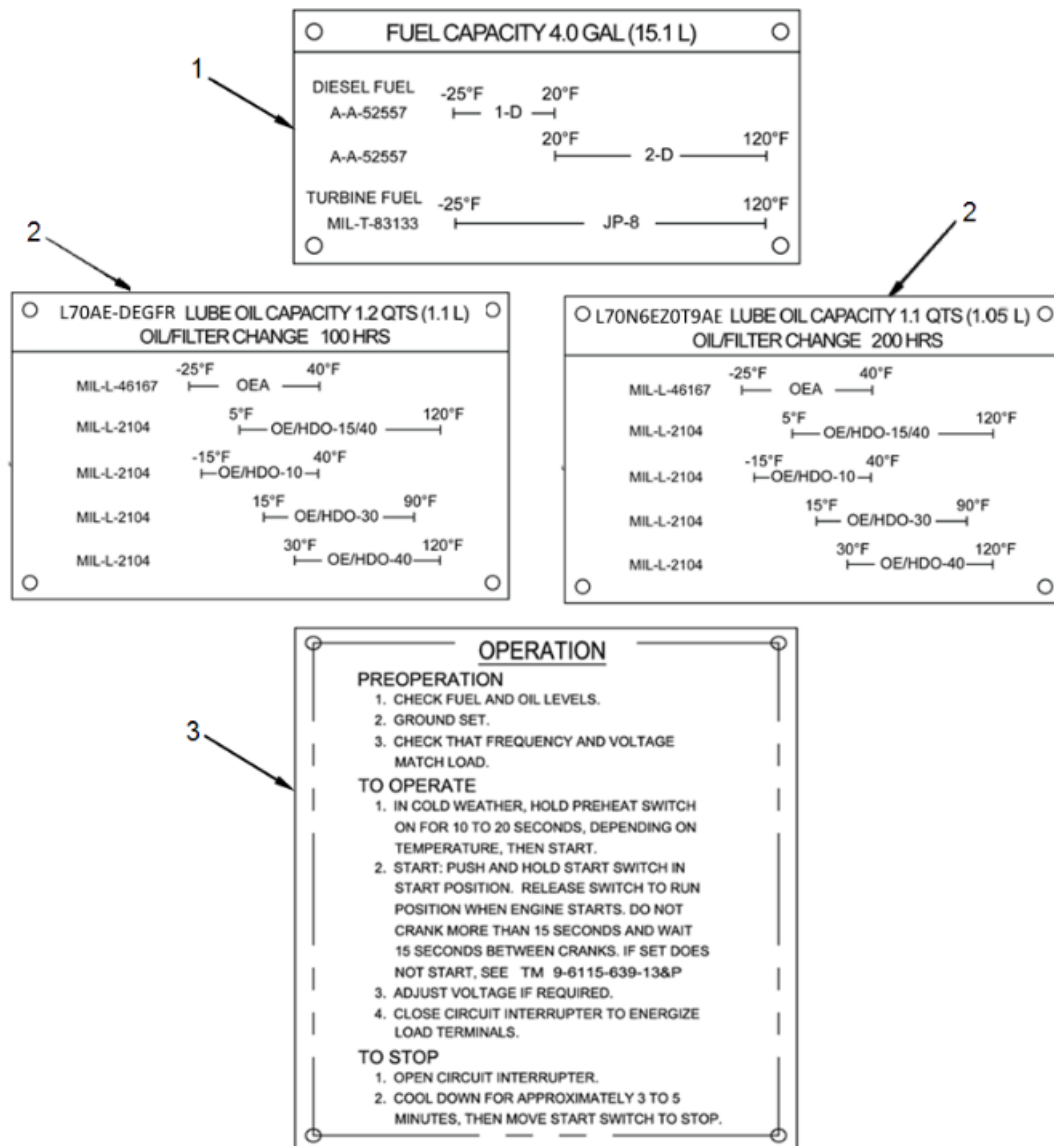


Figure 5. Fuel Capacity, Oil Capacity, and Operation Plates.

EQUIPMENT DATA – CONTINUED

U.S. DEPARTMENT OF DEFENSE NATO STANDARD OTAN	
GENERATOR SET DIESEL ENGINE 3KW 60HZ	
MODEL	MEP-831A
NSN	6115-01-285-3012
SER NO.	
REG NO.	
TM	TM9-6115-639-13
TO	35C2-3-386-51
NAVFAC	
TM	10155A-13/1
VOLTS	120V 1PH, 120/240V 1PH
AMPS	31/16
PF	0.8
DRY WT	304 LB
LG	34.8 IN
W	27.8 IN
HGT	26.5 IN
DATE MFD	
CONTR NO.	W909MY-12-D-0018
WARRANTY	
DATE INSP	
MFD BY	FIDELITY TECH
INSP STAMP	

U.S. DEPARTMENT OF DEFENSE NATO STANDARD OTAN	
GENERATOR SET DIESEL ENGINE 3KW 400HZ	
MODEL	MEP-832A
NSN	6115-01-287-2431
SER NO.	
REG NO.	
TM	TM9-6115-639-13
TO	35C2-3-386-51
NAVFAC	
TM	10155A-13/1
VOLTS	120V 1PH, 120/240V 1PH
AMPS	31/16
PF	0.8
DRY WT	302 LB
LG	34.8 IN
W	27.8 IN
HGT	26.5 IN
DATE MFD	
CONTR NO.	W909MY-12-D-0018
WARRANTY	
DATE INSP	
MFD BY	FIDELITY TECH
INSP STAMP	

Figure 6. ID Plates (60HZ and 400HZ).

EQUIPMENT DATA – CONTINUED

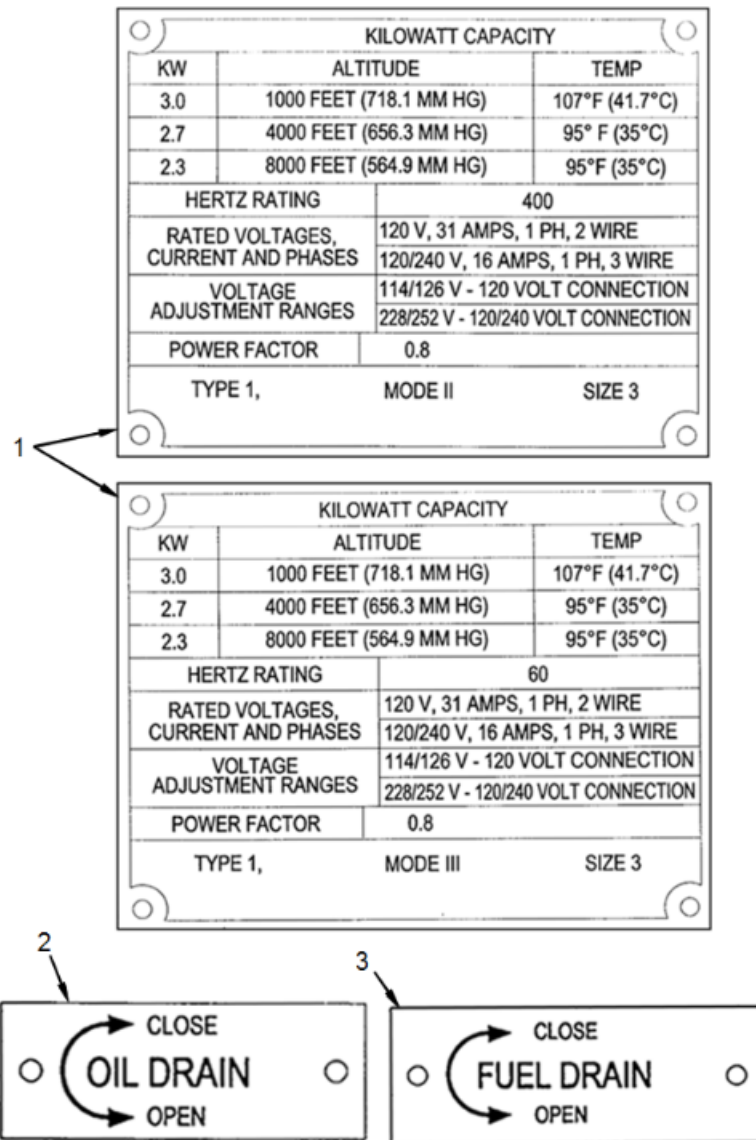


Figure 7. Kilowatt Capacity (400HZ and 60HZ), Oil Drain, and Fuel Drain Plates.

EQUIPMENT DATA – CONTINUED

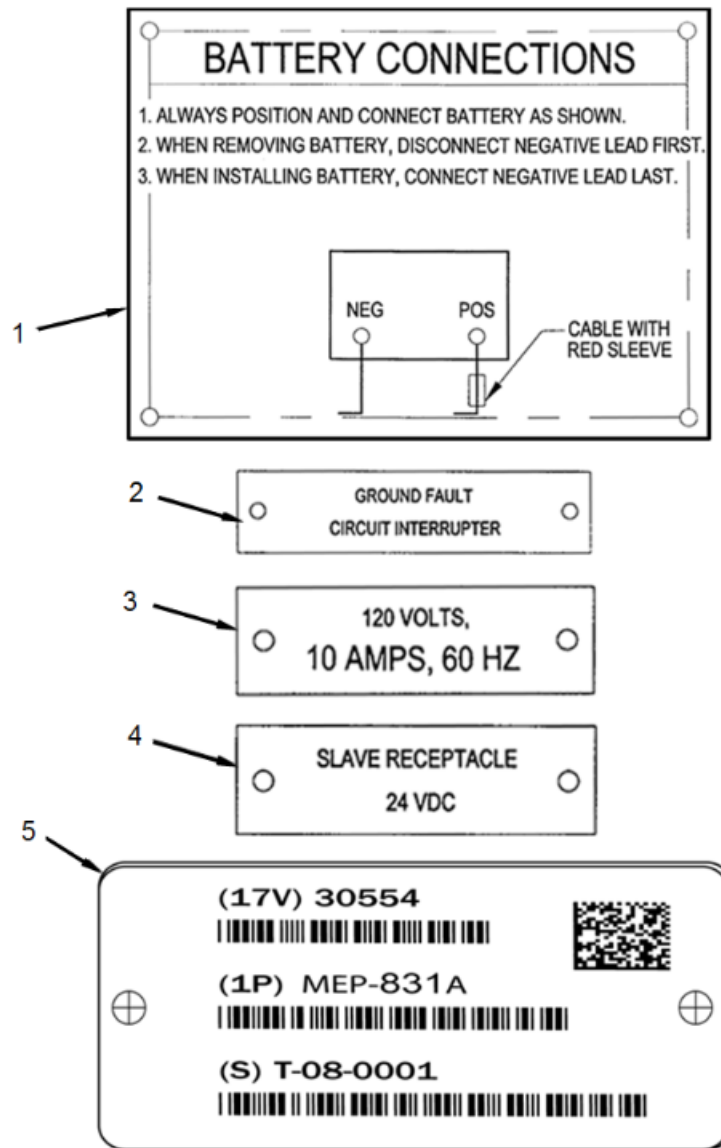


Figure 8. Battery Connections; GFCI; 120 Volts, 10 AMPS, 60HZ; Slave Receptacle 24 VDC; and IUID Plates.

EQUIPMENT DATA – CONTINUED

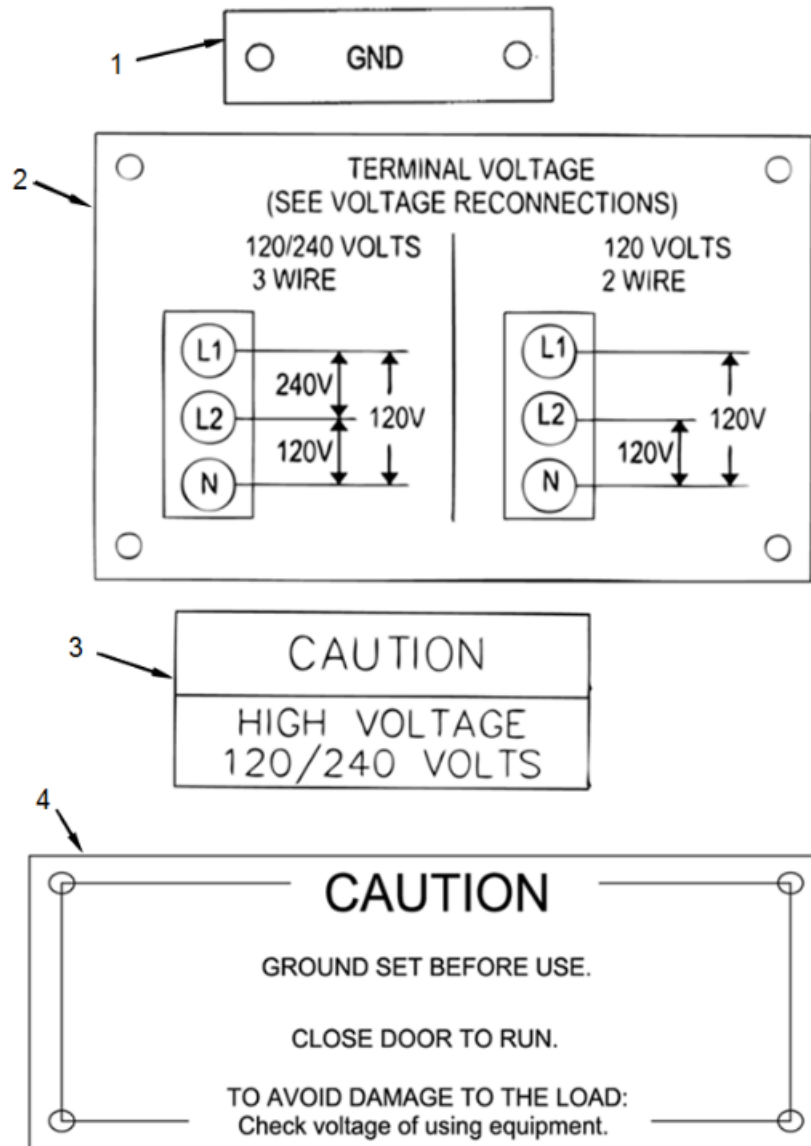


Figure 9. Ground, Terminal Voltage, Caution (High Voltage), and Caution (Ground Set Before Use) Plates.

END OF WORK PACKAGE

THEORY OF OPERATION

THEORY OF OPERATION

The theory behind the operation of the generator set is described in the following paragraphs. Each component depends on the other for efficient operation of the generator set. The information contained herein will assist operator and field maintenance personnel in understanding how the generator set functions. This knowledge will help isolate components that have failed.

ELECTRICAL SYSTEM

The generator set has two electrical systems: direct current (DC) and alternating current (AC) (Figure FO-1). The DC system provides generator control circuitry, relay logic, and engine cranking. The AC system produces voltage for output application. Five test points (on terminal board TB3) (See FO-2) provide malfunction isolation for critical components of the generator set.

DIRECT CURRENT SYSTEM (Figure FO-1)

- a. The DC system (Figure FO-1) is powered by a 24 VDC battery (BT1). The battery is charged by the battery charging regulator (A9) when the engine is running. Engine cranking is initiated by placing the START/RUN/STOP switch (S1), located on the control panel, in the START position. This signals the engine start contactor (K2) to actuate the engine start solenoid (L4) and energize the starter motor (B1).

NOTE

When starting the set, if switch (S1) is not held in the START position long enough (at least two seconds) the DC control circuitry will not activate and the engine can only be shut down manually. This is done by lifting the main cover and pressing down the governor actuator lever until you hear the engine completely shutdown.

- b. With the START/RUN/STOP switch (S1) in the START or RUN position, the engine fuel transfer pump (E2) is energized, allowing fuel to be pumped to the engine high pressure pump. Placing the START/RUN/STOP switch in the RUN position de-energizes the starter motor (B1). Placing the START/RUN/STOP switch in the STOP position opens the circuit to the engine fuel transfer pump (E2) and the governor control (A5), stopping fuel flow to the engine. DC voltage is removed from the AC circuit interrupter coil, causing the contactor to open.
- c. Pressing the EMERGENCY STOP button (S19), located on the control panel, opens the AC circuit interrupter (K1) and disconnects power to the governor control (A5). This causes the generator set to shut down.
- d. The generator set is equipped with an engine preheat system to help in cold-weather operation, below +20 °F (-6.6 °C). Prior to starting the engine the preheat mode may be actuated by placing the PREHEAT switch (S18), located on the control panel, in the ON position. This signals the engine preheat contactor (K13) to energize the air heaters (H1 and H2). The air heater heats intake air, which, in turn, assists in igniting fuel when injected into the engine combustion chamber.
- e. Should engine oil temperature exceed normal maximum operating temperature (+248 °F) (120 °C), a heat sensitive temperature switch (HT) closes the circuit to energize the fault lockout relay (K12) and shut down the engine. The ENGINE HIGH TEMP indicator on the malfunction indicator module (A2) illuminates. The fault lockout relay (K12) locks out power to the engine until the FAULT RESET/LAMP TEST button on A2 is depressed while the START/RUN/STOP switch is in the RUN position. If the oil temperature has not decreased below normal maximum, the fault can not be reset. This safety mechanism prevents the operator from using the generator set until the malfunction has been corrected.
- f. Should engine oil pressure drop below 15 psi, a low oil pressure switch (OP) closes the circuit to energize the fault lockout relay (K12) and shut down the engine. The LOW OIL PRESS indicator on the malfunction indicator module (A2) illuminates. The fault lockout relay (K12) locks out power to the engine until the

THEORY OF OPERATION – CONTINUED

FAULT RESET/LAMP TEST button on A2 is depressed while the START/RUN/STOP switch is in the RUN position. The set can then be re-started. Alternatively, the system can be reset by placing the START/RUN/STOP switch in the STOP position.

- g. Relay K8, located in the frequency converter (A8), is energized if an overload condition exists. The overload condition may be either a current overload or a real power (kW) overload. The AC circuit interrupter (K1) opens, disconnecting power from the load. The OVERLOAD SHORT CIRCUIT indicator on the malfunction indicator module (A2) illuminates. Once the malfunction has been corrected, the malfunction indicator can be reset by depressing the FAULT RESET/LAMP TEST button while the START/RUN/STOP switch is in the RUN position. The AC circuit interrupter (K1) can then be re-closed.
- h. Relay K6, located in the frequency converter (A8), is energized if a short circuit condition exists. The fault lockout relay (K12) is energized, stopping the engine. The AC circuit interrupter (K1) opens, disconnecting power from the load. The OVERLOAD SHORT CIRCUIT indicator on the malfunction indicator module (A2) illuminates. The fault lockout relay (K12) locks out power to the engine until the FAULT RESET/LAMP TEST button on A2 is depressed while the START/RUN/STOP switch is in the RUN position. The set can then be re-started. Alternatively, the system can be reset by placing the START/RUN/STOP switch in the STOP position.
- i. Relay K3, located in the frequency converter (A8), is energized if an overvoltage condition exists. The fault lockout relay (K12) is energized, stopping the engine. The AC circuit interrupter (K1) opens, disconnecting power from the load. The OVER VOLTAGE indicator on the malfunction indicator module (A2) illuminates. The fault lockout relay (K12) locks out power to the engine until the FAULT RESET/LAMP TEST button on A2 is depressed while the START/RUN/STOP switch is in the RUN position. The set can then be re-started. Alternatively, the system can be reset by placing the START/RUN/STOP switch in the STOP position.
- j. In an emergency situation, the BATTLE SHORT switch (S7) can be activated to allow generator set operation under certain fault conditions. The set cannot be started with the BATTLE SHORT switch in the ON position. Once the set is running, placing the switch (located on the control panel) in the ON position bypasses all faults except the overload short circuit condition. The BATTLE SHORT indicator on the malfunction indicator module (A2) illuminates. The generator set continues to operate under high temperature, low oil pressure, low fuel, or overvoltage conditions. The appropriate indicator light on A2 illuminates if a fault condition occurs.
- k. In generator set model MEP-832A (400 Hz), two thermostatically controlled DC ventilation fans (B2 and B3) are mounted in the generator set. One is mounted on the inside portion of the main access cover and the second is mounted inside the generator set by the right-side panel. These fans provide internal cooling of the generator set under high temperature operating conditions. The fan temperature switches (S20 and S21) (see FO-1, Sheet 2) are set to turn ON fan B2 when internal air temperature reaches 85 °F (29 °C) and fan B3 when internal air temperature reaches 110 °F (43 °C).

ALTERNATING CURRENT SYSTEM (Figure FO-1)

- a. The power for the AC electrical system (Figure FO-1) is provided by the Permanent Magnet Alternator (PMA) (G1). The frequency converter (A8) converts this AC power electronically to 120/240 V, 60 Hz or 400 Hz power.

NOTE

The frequency converter (A8) is not waterproof. Water in the A8 can cause it to short out, thereby creating a catastrophic failure.

- b. In generator set model MEP-831A (60 Hz), a common 15 amp duplex convenience receptacle (J1) provides up to 10 amps of power for common 120 VAC appliance or tool loads. CB3 provides both a 10 amp limitation and Ground Fault Circuit Interrupter protection for the convenience receptacle circuitry and the connected appliance.

THEORY OF OPERATION – CONTINUED**NOTE**

If a ground fault occurs the set output voltage will be greatly reduced. CB3 must be reset to restore normal operation.

- c. Once the generator set reaches normal operating voltage (114 to 126 V for 120 V connection, 228 to 252 V for 240 V connection), the CIRCUIT INTERRUPTER switch (S5), located on the control panel, is placed in the CLOSED position. The AC circuit interrupter (K1) closes, applying frequency converter (A8) output voltage to the output terminal board (TB2, terminals L1, L2, and N). Placing the CIRCUIT INTERRUPTER switch (S5) in the OPEN position opens the AC circuit interrupter, removing frequency converter (A8) output voltage from the output terminals.
- d. Voltage adjustment is accomplished using the VOLTAGE ADJUST potentiometer (R1), located on the control panel. Output from the frequency converter (A8) is displayed on a LOAD meter (M2) and a VOLTAGE meter (M1). Both meters are located on the control panel.
- e. In generator set model MEP-831A (60 Hz), two thermostatically controlled AC ventilation fans (B2 and B3) are mounted in the generator set main access cover. These fans provide internal cooling of the generator set under high temperature operating conditions. The fan temperature switches (S20 and S21) are set to turn on fan B2 when internal air temperature reaches 85 °F (29 °C) and fan B3 when internal air temperature reaches 110 °F (43 °C).

GENERATOR (Figure FO-1)

- a. The AC generator (G1) (see Figure FO-1) is a direct-coupled Permanent Magnet Alternator (PMA). The rotor and fan are dynamically balanced at all speeds up to 125 percent rated speed to minimize vibration. The windings and coils in the stator assembly use Class H insulating material. Temperature rise of the windings is limited to a change of 221 °F (105 °C) (maximum).
- b. The generator produces voltage by rotating permanent magnets in the rotor past a stator winding. The magnetized poles of the rotor have alternate north and south polarity. The magnetic flux lines leave each north pole of the rotor, pass through the stator, and return to the adjacent south poles of the rotating field.

NOTE

The frequency converter (A8) converts generator output to a 120/240 V, 60 Hz or 400 Hz output, regardless of engine speed. The electric governor varies the engine speed in proportion to the kW load on the generator set.

- c. As the rotor turns, voltage is induced in the stator windings. The stator voltage output is connected to the static frequency converter (A8). Voltage output can be varied using the VOLTAGE ADJUST rheostat (R1). Frequency output is not adjustable.

FUEL SYSTEM (Figure 1)

- a. The generator set fuel system (Figure 1) consists of a 4.0 gallon (15.1 liter) fuel supply tank, fuel transfer pumps, fuel filter/water separator, auxiliary fuel intake system, and engine fuel components. The fuel tank is sized to contain enough fuel to operate the generator set for 8 hours at full load using any of the specified fuels (See WP 0010, Table 1). The tank is connected to a fuel fill pocket, which contains a vented fill cap (Figure 1, Item 4), a fuel filler neck, and a fuel strainer (Figure 1, Item 5). A tank drain valve (Figure 1, Item 11) is located at the base of the tank.
- b. The engine fuel supply line passes fuel from the fuel tank, through a fuel filter/water separator (Figure 1, Item 13), a primary fuel transfer pump (Figure 1, Item 12), and a fuel injection pump (Figure 1, Item 7), into the fuel injector (Figure 1, Item 6). The fuel filter/water separator removes micro-particles and separates water from the fuel flow. Water collects in the filter/water separator bowl where it can be drained.

THEORY OF OPERATION – CONTINUED

- c. The generator set fuel system is equipped with two fuel transfer pumps: primary (Figure 1, Item 12) and auxiliary (Figure 1, Item 1). The primary fuel transfer pump (Figure 1, Item 12) feeds fuel from the fuel tank to the engine injection system. When the START/RUN/STOP switch (S1) (see Figure FO-1) is placed in the START or RUN position, the primary fuel transfer pump is energized. Fuel flows to the fuel injection pump (Figure 1, Item 7). The pump provides the pressurized fuel to operate the fuel injector (Figure 1, Item 6).
- d. For generator set operation from an auxiliary fuel source, the auxiliary fuel hose is connected to the set at the auxiliary fuel connection (Figure 1, Item 2). The AUX FUEL switch (Figure 1, Item 14, located on the control panel) is placed in the ON position. A three-position float switch (Figure 1, Item 3) monitors tank fuel level and controls auxiliary fuel system components. If fuel is below the float switch (FL2B), the auxiliary fuel transfer relay (Figure 1, Item 15) energizes and activates the auxiliary fuel pump (Figure 1, Item 1). The auxiliary fuel pump begins operation and draws fuel from the auxiliary source until the fuel level in the tank rises above the float switch (FL2A). Once the fuel level rises above the float switch (FL2A), the switch opens and de-energizes the auxiliary fuel transfer relay (Figure 1, Item 15). The level monitoring/servicing cycle continues until the AUX FUEL switch (Figure 1, Item 14) is placed in the OFF position.
- e. If at any time during operation the tank fuel level drops below the float switch (FL1), the fault lockout relay (Figure 1, Item 10) opens and de-energizes the governor control (Figure 1, Item 9) and governor actuator (Figure 1, Item 8), cutting off fuel to the engine. This prevents the fuel system from running dry, causing loss of prime in the fuel injection pump (Figure 1, Item 7). The NO FUEL indicator on the fault isolation module illuminates, and the generator set immediately shuts down. Once the fault lockout relay (Figure 1, Item 10) has been actuated, the engine does not run until the FAULT RESET button on the malfunction indicator module has been depressed.
- f. If the fuel level drops below the float switch (FL2B) and an auxiliary fuel source is not available, the generator set continues to operate for 3 to 4 hours before the float switch (FL1) is actuated and shutdown occurs.

THEORY OF OPERATION – CONTINUED

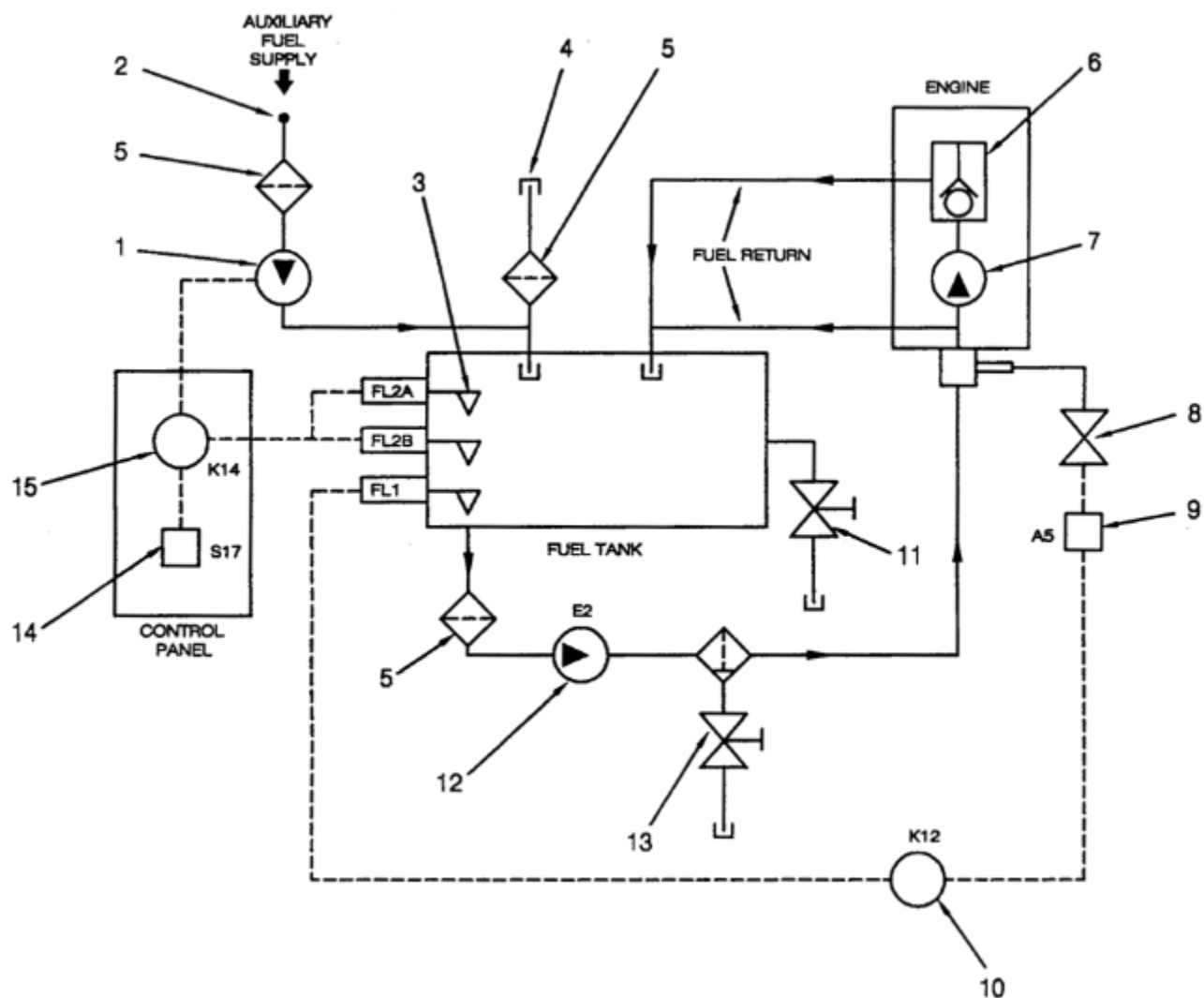


Figure 1. Fuel System Schematic.

Table 1. Figure 1 Legend.

ITEM	DESCRIPTION
1	Auxiliary Fuel Pump
2	Auxiliary Fuel Connection
3	Float Switch
4	Fill Cap
5	Fuel Strainer
6	Fuel Injector
7	Injection Pump
8	Governor Actuator
9	Governor Control

THEORY OF OPERATION – CONTINUED**Table 1. Figure 1 Legend. – Continued**

ITEM	DESCRIPTION
10	Fault Lockout Relay
11	Tank Drain Valve
12	Primary Fuel Transfer Pump
13	Fuel Filter/Water Separator
14	AUX FUEL Switch
15	Auxiliary Fuel Transfer Relay

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

OPERATOR MAINTENANCE

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS

CONTROLS AND INDICATORS

Prior to placing the generator set into operation, personnel must be familiar with the location and function of all switches, controls, and indicators, as described below and identified in Figure 1. See generator set electrical schematic, Figure FO-1, for reference designations.

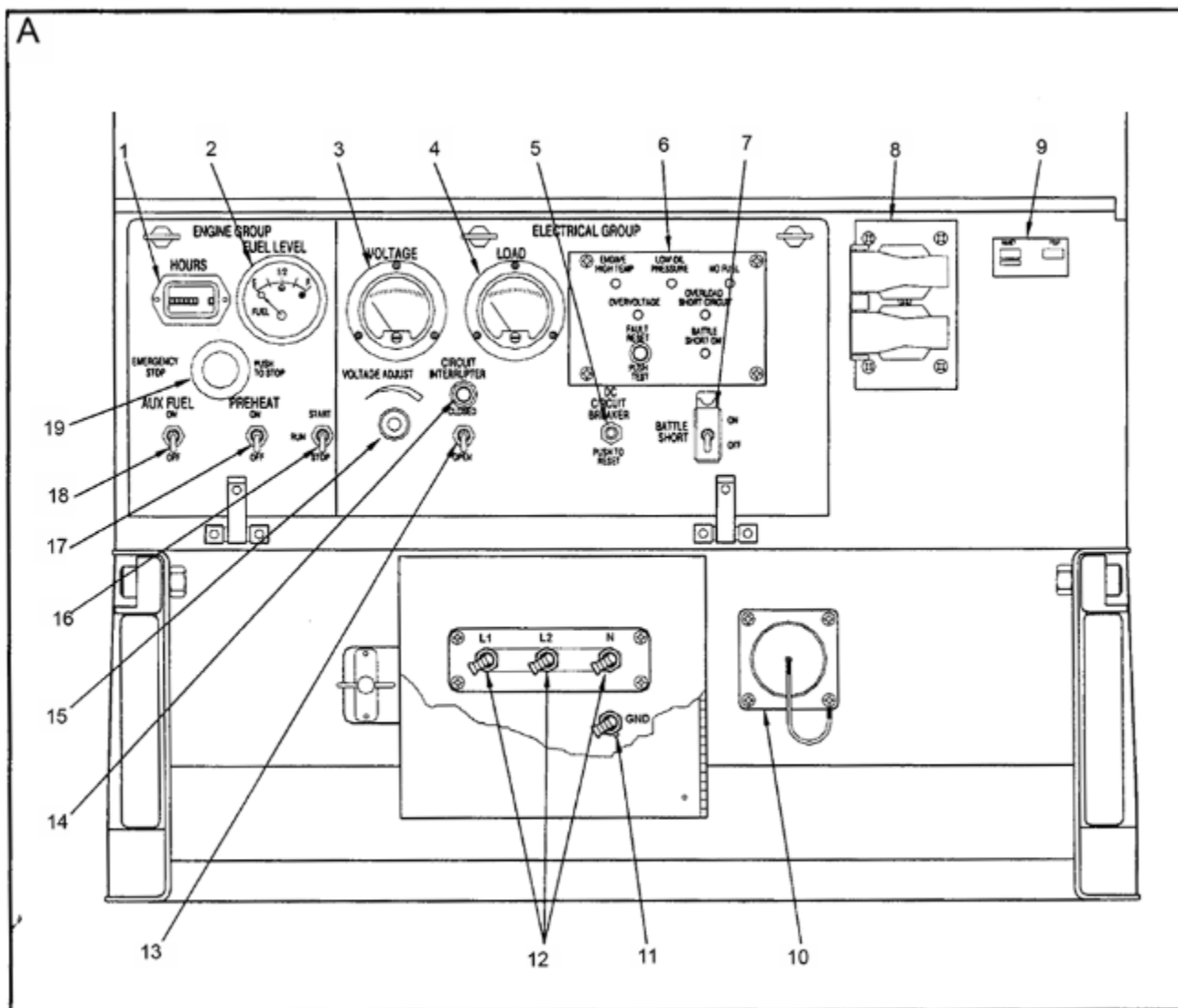


Figure 1. Generator Set Controls and Indicators (Sheet 1 of 4).

CONTROLS AND INDICATORS – CONTINUED

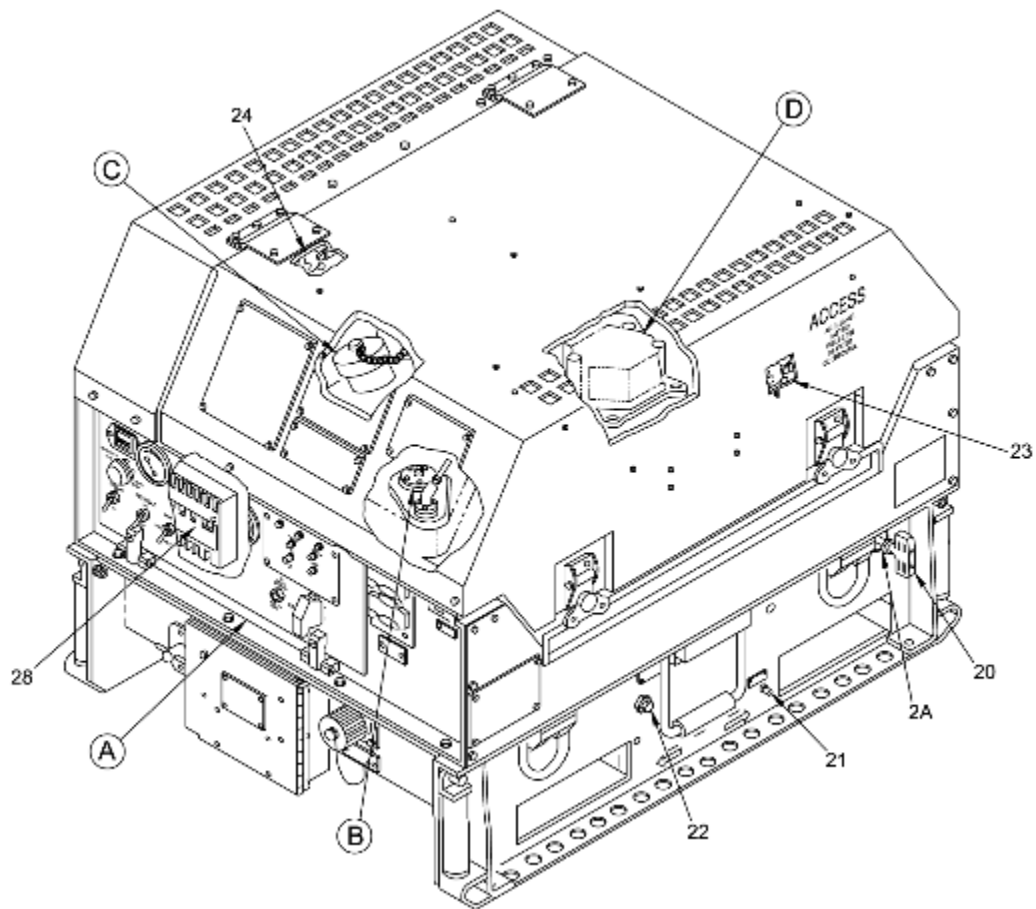


Figure 1. Generator Set Controls and Indicators (Sheet 2 of 4).

CONTROLS AND INDICATORS – CONTINUED

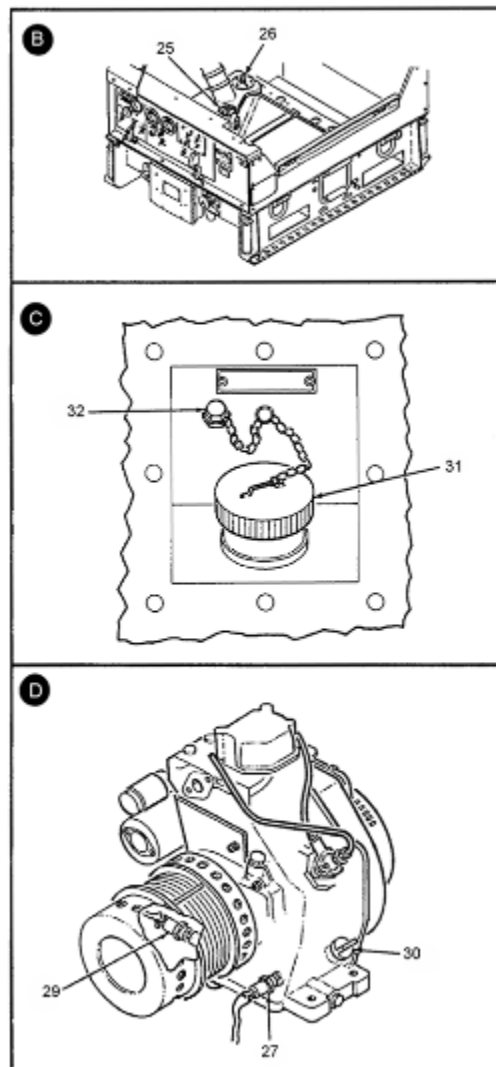


Figure 1. Generator Set Controls and Indicators (Sheet 3 of 4).

CONTROLS AND INDICATORS – CONTINUED

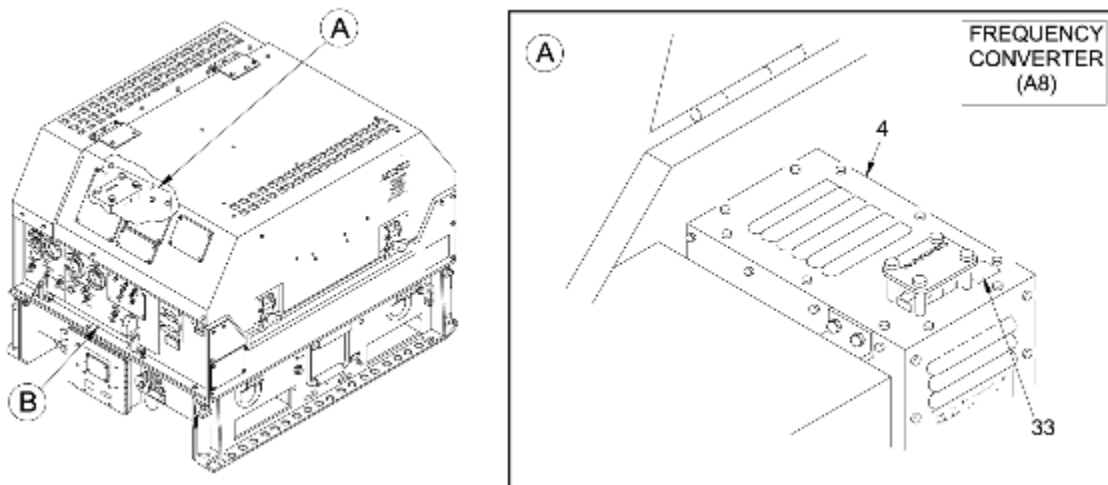


Figure 1. Generator Set Controls and Indicators (Sheet 4 of 4).

Table 1. Operators Controls and Indicators Table.

KEY	CONTROL/INDICATOR	FUNCTION
1	Hours Meter (M3)	Indicates hours of generator set operation.
2	Fuel Level Meter (M5)	Indicates amount of fuel remaining in generator set fuel tank.
3	Voltage Meter (M1)	Indicates generator set output voltage.
4	Load Meter (M2)	Indicates generator load in kilowatts.
5	DC Circuit Breaker Switch (CB1)	Trips to stop generator set operation in case of electrical surge in DC control system. Push to reset breaker.
6	Fault Indicator Module (A2)	Contains lights that indicate generator set operating conditions. Includes the following indicator lights: Dual-purpose FAULT RESET/PUSH TEST push-button switch allows operator to test indicator lights before operation and reset fault isolation module after fault has been remedied.
7	Battle Short Switch (S7)	Two-position switch that allows generator set operation under certain fault conditions.
8	Convenience Receptacle (J1) (60 Hz only)	Single-phase duplex receptacle that allows 120 VAC appliance or tool connection.
9	Ground Fault Circuit Interrupter (GFCI) (CB3)(60 Hz only)	Provides automatic circuit interruption and circuit protection for the convenience receptacle (J1).
10	NATO Slave Receptacle (SR1)	Indicates amount of fuel remaining in generator set fuel tank.
11	GND Terminal	Generator set ground terminal.
12	L1, L2, N Terminals	Generator set alternating current (L1, L2) and neutral (N) terminals.

CONTROLS AND INDICATORS – CONTINUED

Table 1. Operators Controls and Indicators Table. – Continued

KEY	CONTROL/INDICATOR	FUNCTION
13	Circuit Interrupter Switch (S5)	Two-position switch that applies generator voltage to the output terminal board.
14	AC Circuit Interrupter Indicator (DS6)	Lights when Circuit Interrupter switch (S5) is in closed position, indicating load is being applied to terminal board.
15	Voltage Adjust Potentiometer (R1)	Allows operator to adjust generator set output voltage.
16	START/RUN/STOP Switch (S1)	Three-position switch that controls generator set operation.
17	Preheat Switch (S18)	Two-position switch that controls engine preheat system.
18	AUX Fuel Switch (S17)	A two-position switch, located on control panel assembly, that allows generator set to operate using an auxiliary fuel source.
19	Emergency Stop button (S19)	A push-button switch that opens AC circuit interrupter (K1) and disconnects power to governor control (A5), which causes generator set to shut down. For emergencies only.
20	Engine Start Handle	Allows for manual start of generator set engine. Activates engine's recoil starter assembly.
21	Fuel Drain Plug	Allows personnel to drain generator set fuel tank. Connected to a fuel drain line.
22	Engine Start Handle	Allows personnel to drain engine oil sump. Connected to an oil drain line.
23	Temperature Switch (S21)	Monitors temperature inside generator set enclosure. Activates ventilation fan (B3) when temperature reaches 110 °F (43 °C).
24	Temperature Switch (S20)	Monitors temperature inside generator set enclosure. Activates ventilation fan (B2) when temperature reaches 85 °F (29 °C).
25	Fuel Level Switch (FL)	Three-position float switch that monitors fuel level in generator set fuel tank. Controls auxiliary fuel transfer relay (K14) when AUX FUEL switch (see Item 18) is in ON position. When fuel level is below switch (FL2B), auxiliary fuel transfer relay (K14) energizes and activates auxiliary fuel pump (E1) to begin fuel pumping. When fuel level rises above switch (FL2A), transfer relay opens, deactivating pump. If fuel drops below switch (FL1), fault lockout relay (K12) opens and de-energizes governor control (A5) (See Item 28), cutting off fuel to engine. The NO FUEL indicator on fault indicator module (A2) will light (see Item 6).
26	Fuel Level Sender (MT5)	Sends generator set fuel tank level data to FUEL LEVEL meter (M5) (see Item 2).

CONTROLS AND INDICATORS – CONTINUED**Table 1. Operators Controls and Indicators Table. – Continued**

KEY	CONTROL/INDICATOR	FUNCTION
27	Low Oil Pressure Switch (OP)	Monitors engine oil pressure. If oil pressure drops below 15 psi, switch closes circuit to energize fault lockout relay (K12) and shut down engine. The LOW OIL PRESSURE indicator on fault indicator module (A2) will light (see Item 6).
28	Governor Control (A5)	Controls engine's mechanical governor to adjust engine speed.
29	Engine Temperature Switch (HT)	Monitors engine temperature. If engine temperature rises above 265 °F (129 °C), switch closes circuit to energize fault lockout relay (K12) and shut down engine. The ENGINE HIGH TEMP indicator on fault indicator module (A2) will light (see Item 6).
30	Engine Oil Fill Cap and Gauge	Allows for engine oil servicing. Gauge in cap measures crankcase oil level.
31	Fuel Fill Cap	Allows for generator set fuel servicing, using a fill tank or fuel nozzle. Includes a mesh fuel strainer.
32	Auxiliary Fuel Cap	Allows for connection of an auxiliary fuel line.
33	Voltage Selection Switch	Allows selection of 120 VAC or 120/240 VAC on MEP-831A sets. Located on top of Frequency Converter (A8).
34	Feed-Through Hole for Recoil Winding Mechanism Pull Rope	Allows the Pull Rope to travel as it winds and unwinds when starting the Generator Set Manually.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Materials/Parts**

Grounding Rod (WP 0120, Figure 32)

References

WP 0002
 WP 0004
 WP 0006
 WP 0007
 WP 0010

References - cont'd

WP 0026
 WP 0131

Equipment Condition

Generator set shut down, cool, and properly grounded (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

ASSEMBLY AND PREPARATION FOR USE**WARNING**

- Operation and maintenance of the 3 kW generator sets contains many possibilities for injury or death to personnel. Be sure to be familiar with general first aid procedures as referenced in FM 4- 25.11, First Aid (WP 0131, References). Failure to comply may cause injury or death to personnel.
- To prevent injury to personnel and damage to equipment, use caution when lifting or moving generator set. Six people are required for manual lifting. Use lifting rings for lifting device and forklift openings for forklift only. Do not lift generator set over personnel. Failure to observe this warning could result in severe personal injury or death.
- If damaged or defective components are discovered, repair must be performed before operations can begin. Perform required repairs and adjustments before proceeding. Do not operate the generator set with damaged components. Personal injury can occur if damaged parts are left unfixed. Failure to observe this warning could result in severe personal injury or death.

NOTE

Prior to placing generator set into service, operating personnel must be familiar with the location and function of all switches, controls, and indicators. See WP 0004, Operator Controls and Indicators and Figure 1 before continuing with the following procedures.

1. Using a 500-pound capacity hoist (WP 0133, Table 2, Item 5) or similar lifting device, remove generator set from its shipping container. Place on a suitable work surface.
2. Remove packing material from generator set.
3. Inspect generator set for damage incurred during shipping. If equipment has been damaged, report damage in accordance with DA PAM 750-8 (WP 0131, References).
4. Check generator set against packing slip to ensure shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 750-8 (WP 0131, References).

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

5. Check all tags and forms accompanying generator set for special instructions. Do not remove any forms or tags until generator set is installed and ready for operation. When generator set is installed, remove forms and tags and forward to Quality Control (QC) section office.

GROUNDING THE GENERATOR SET**WARNING**

- High voltage is produced when generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Do not ground yourself in standing water. Never attempt to connect or disconnect load cables while the generator set is running. Failure to comply may cause injury or death to personnel.
- Metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry and do not wear loose clothing when working on equipment. Failure to comply may cause injury or death to personnel.

1. Connect ground rod and cable as follows:
 - a. Open output load terminal cover. Insert ground cable (Figure 1, Item 1) through slot on generator set GND output terminal (Figure 1, Item 2). Using load terminal wrench, tighten terminal nut.
 - b. Connect coupling (Figure 1, Item 3) to ground rod (Figure 1, Item 4), and screw driving stud (Figure 1, Item 5) into coupling. Make sure driving stud seats on ground rod.

NOTE

For ease of removal, install ground rod at a 45° angle.

- c. Drive ground rod (Figure 1, Item 4) into ground on a 45° angle until coupling (Figure 1, Item 3) is just above ground surface.
- d. Remove driving stud (Figure 1, Item 5) and install another section of ground rod (Figure 1, Item 4). Install another coupling (Figure 1, Item 3) and driving stud (Figure 1, Item 5).
- e. Drive ground rod (Figure 1, Item 4) down until new coupling (Figure 1, Item 3) is just above ground surface.
- f. Repeat Steps d and e, above, until ground rod has been driven 8 feet or deeper, providing an effective ground.
- g. Connect clamp (Figure 1, Item 6) and ground cable (Figure 1, Item 1) to ground rod (Figure 1, Item 4). Tighten clamp screw securely to prevent movement.

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

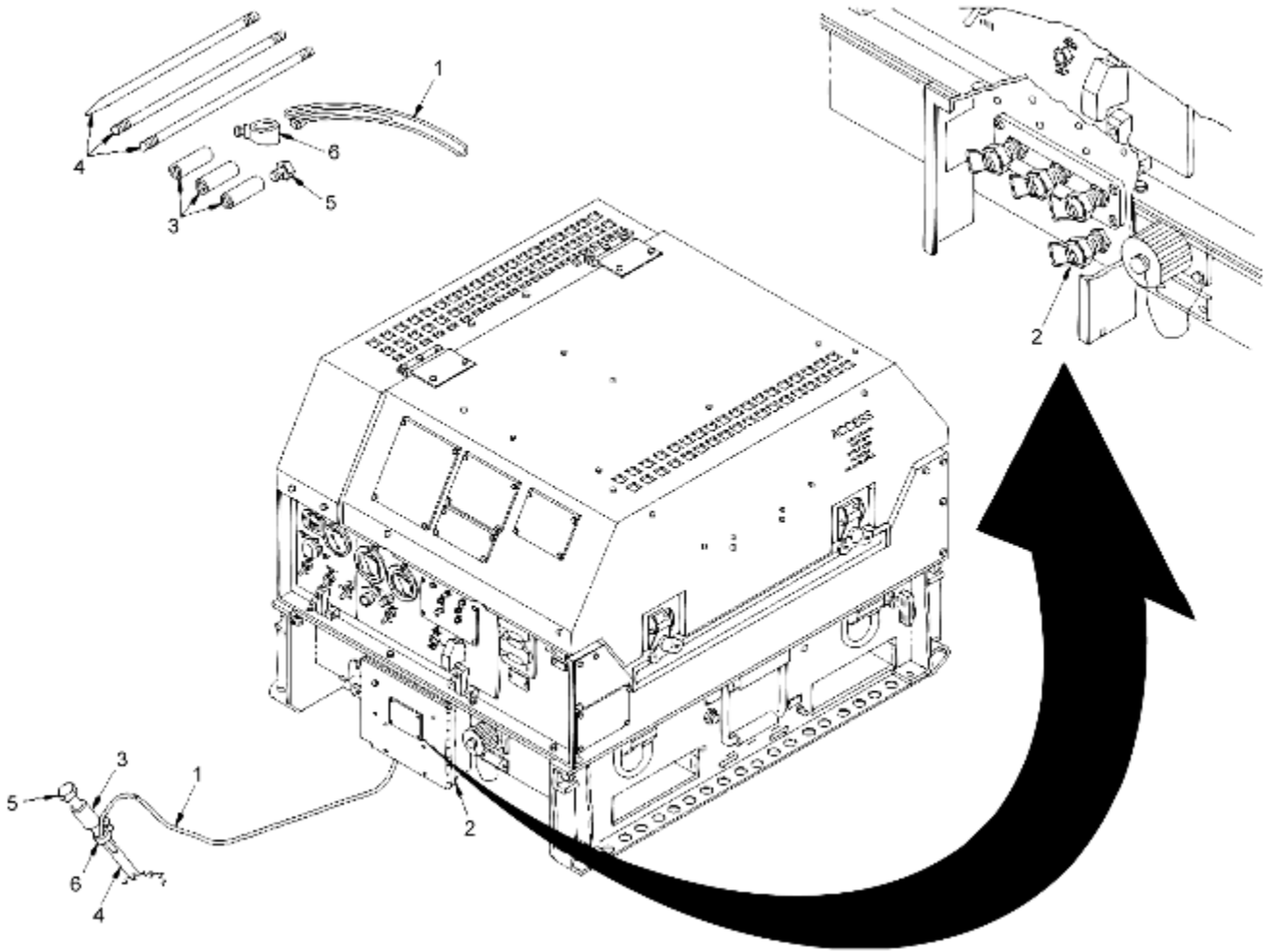


Figure 1. Ground Rod and Cable Installation.

Table 1. Figure 1 Legend.

ITEM	DESCRIPTION
1	Ground Cable
2	GND Output Terminal
3	Coupling
4	Ground Rod
5	Driving Stud
6	Clamp

PRE-OPERATION

ASSEMBLY AND PREPARATION FOR USE – CONTINUED**WARNING**

• Batteries give off flammable gas. Do not smoke or use open flame when performing maintenance. Flames and explosion could result in severe personal injury or death. Failure to observe this warning could result in severe personal injury or death. • Do not allow battery acid to contact skin or clothing. Contact of skin with battery acid liquid or inhalation of battery acid mist can cause severe burns, respiratory tract infection, and chronic bronchitis. If any battery acid liquid or mist contacts skin or eyes, immediately flush affected areas thoroughly with water. If vapors are inhaled, go to fresh air. Seek medical help immediately. Failure to observe this warning could result in severe personal injury or death.

1. Ensure battery cables are properly connected. If battery installation is required, refer to Field Maintenance (WP 0026).
2. If auxiliary power is required, connect auxiliary power cable to NATO SLAVE RECEPTACLE (Figure 2, Item 6).

WARNING

Fuel used in this generator set is combustible and toxic to skin, eyes, and respiratory tract. Avoid repeated or prolonged contact. Handle only in a well-ventilated area. Keep away from sparks, open flames, or other sources of ignition. Do not splash fuel on hot components. Do not fuel generator set while it is operating. Do not overfill the tank. Ensure generator set is properly grounded before fueling. Ensure approved gloves and face shield are worn during handling. Failure to observe this warning could result in personal injury and equipment damage due to potential fuel ignition and possible explosion. Ensure approved gloves and face shield are worn during handling. Failure to observe this warning could result in severe personal injury or death.

NOTE

If auxiliary fuel source is used, perform procedure outlined in Step 4.

3. Fill fuel tank, as described in the steps below:
 - a. Remove fuel fill cap (WP 0004, Figure 1, Item 31) from fuel tank.
 - b. If generator set is to be refueled by a gas vehicle, fuel vehicle, or fuel-distribution vehicle, then connect a static ground line (provided with the fueling source) between generator set ground stud and fueling source.
 - c. Fill fuel tank with up to 4 gallons of diesel fuel.
 - d. Remove static ground line and install fuel fill cap (WP 0004, Figure 1, Item 31).
4. If auxiliary fuel source is to be used, connect as follows:
 - a. Remove auxiliary fuel cap (WP 0004, Figure 1, Item 32) from auxiliary fuel connection.
 - b. Connect auxiliary fuel line to auxiliary fuel connection. Ensure diesel fuel is used.

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

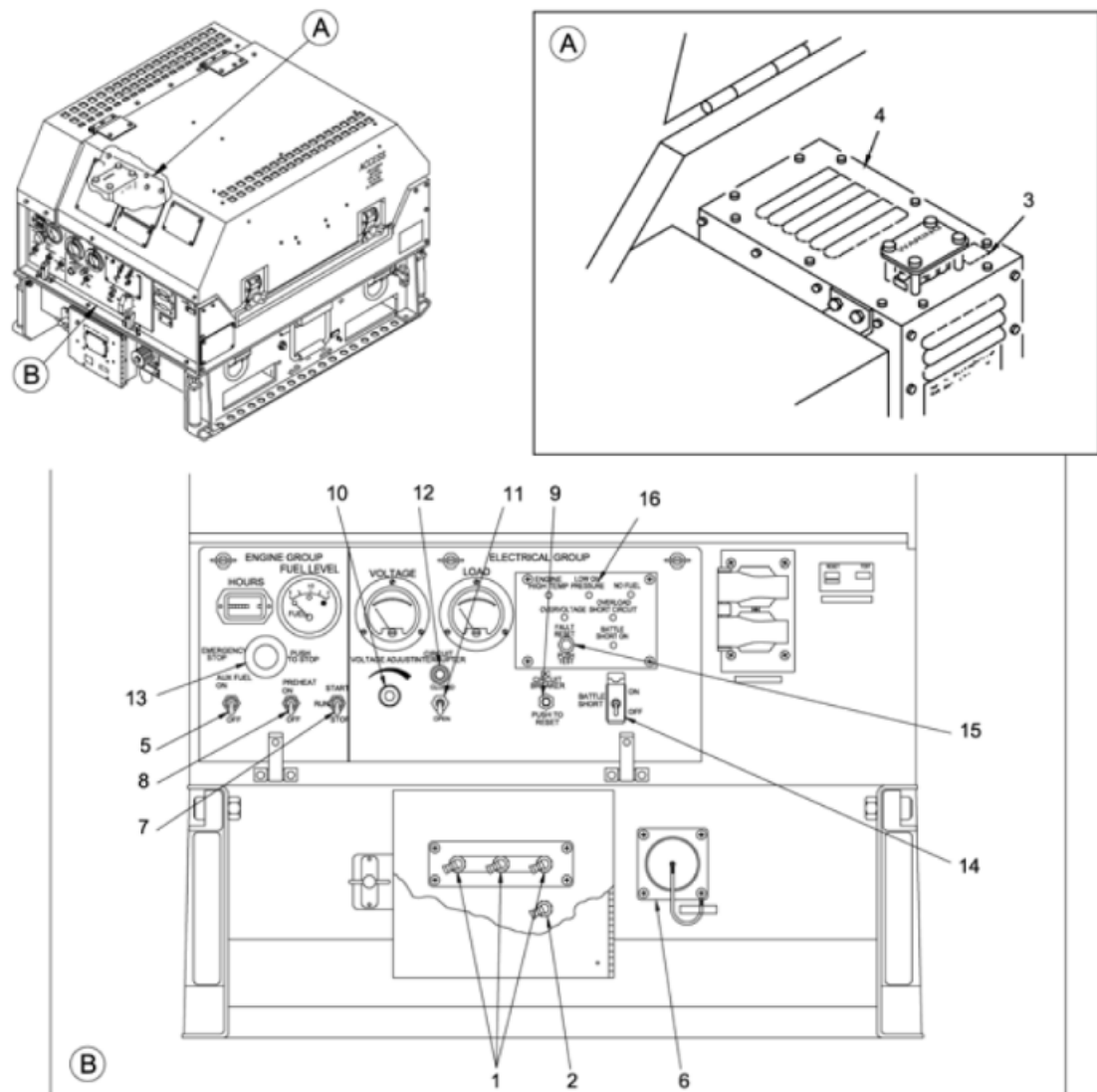


Figure 2. Operating Procedures.

Table 2. Figure 2 Legend.

ITEM	DESCRIPTION
1	Load Terminals
2	Ground Terminal
3	Voltage Selector Switch Access Door
4	Frequency Converter (A8)
5	AUX Fuel Switch

ASSEMBLY AND PREPARATION FOR USE – CONTINUED**Table 2. Figure 2 Legend. – Continued**

ITEM	DESCRIPTION
6	NATO Slave Receptacle
7	Start/Run/Stop Switch
8	Preheat Switch
9	DC Circuit Breaker
10	Voltage Adjust Potentiometer
11	Circuit Interrupter Switch
12	Circuit Interrupter Indicator
13	Emergency Stop Button
14	Battle Short Switch
15	Fault Preset/Push Test Switch
16	Low Oil Pressure Indicator

OIL

1. If required, drain preservative oil from engine crankcase, in accordance with WP 0010, Lubrication Instructions.
2. Fill engine crankcase with oil, in accordance with WP 0010, Lubrication Instructions.

INITIAL ADJUSTMENTS

No initial adjustments are required for operation of the generator set.

Daily Checks

Perform all operator PMCS, in accordance with WP 0010, Table 1.

Self-Test

To check the operational readiness of generator set protection devices and indicators, perform the following procedures:

WARNING

DC voltages are present at generator set electrical components even with the generator set shut down. Avoid shorting any positive terminal with ground or negative. If no DC voltage is required, always disconnect DC power source to the generator set before working on it. Failure to observe this warning could result in severe personal injury or death by electrocution.

WARNING

Never service or perform maintenance on generator set while engine is running. Always shut down generator set before servicing. Allow engine to cool before handling components. Failure to observe this warning could result in severe personal injury or death.

1. Ensure DC Circuit Breaker (Figure 3, Item 9) is pushed in.

INITIAL ADJUSTMENTS – CONTINUED

2. Ensure Emergency Stop button (Figure 3, Item 13) is pulled out.
3. Place START/RUN/STOP switch (Figure 3, Item 7) in RUN position. Low oil pressure light should illuminate.
4. Depress FAULT RESET/PUSH TEST button (Figure 3, Item 15) on fault indicator module and CIRCUIT INTERRUPTER indicator (Figure 3, Item 12) on control panel to check indicators. All indicator lights must illuminate. If CIRCUIT INTERRUPTER indicator does not illuminate, replace bulb. If any malfunction light does not illuminate, refer malfunction to field level maintenance.
5. Place START/RUN/STOP switch (Figure 3, Item 7) in STOP position.
6. Repeat Steps 1 through 3, above, to verify malfunction was corrected.

END OF TASK**OPERATING PROCEDURES****WARNING**

- Make sure personnel are familiar with generator set before operating. Follow proper procedures. Failure to observe this warning could result in injury to personnel and damage to equipment.
 - Exhaust discharge contains deadly gases, including carbon monoxide. Do not operate generator set in enclosed area unless exhaust discharge is properly vented outside. Position generator set as far away from personnel, shelters, and occupied vehicles as possible. Failure to observe this warning could result in severe personal injury or death due to carbon monoxide poisoning.
 - Shut down generator set at first sign of failure. Continued operation could result in injury to personnel and will cause damage to equipment. If generator set is shut down by activation of a safety device, do not operate again until cause of shut down has been determined and eliminated. Failure to observe this warning could result in severe personal injury or death.
 - With main access cover open, the noise level of the generator set when operating could cause hearing damage. Hearing protection must be worn when working within 3.0 m (10 ft. 6 in.) of the generator set while it is running. Failure to observe this warning could result in hearing loss.
 - High voltage is produced when generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Do not ground yourself in standing water. Never attempt to connect or disconnect load cables while the generator set is running. Failure to comply may cause injury or death to personnel.
 - Metal jewelry could conduct electricity. Remove all metal jewelry and loose, dangling articles and clothing before working on generator set. Failure to observe this warning could result in severe personal injury or death from electric shock.
 - Jewelry and other loose, dangling articles and clothing could be caught in moving parts. Remove jewelry and loose, dangling articles and clothing before working on generator set. Failure to observe this warning could result in severe personal injury or death.
1. Open output terminal cover to access load and ground terminals (Figure 2, Items 1 and 2). Connect load cables in accordance with TERMINAL VOLTAGE nameplate mounted on inside of cover (120/240 volts, 3-wire or 120 volts, 2-wire). Close terminal cover and lock.

OPERATING PROCEDURES – CONTINUED**CAUTION**

Ensure Voltage Selector Switch setting matches load-cable voltage connections. Mismatch will cause damage to equipment.

2. Set Voltage Selector Switch to match load cable voltage connections as follows:
 - a. Unlock generator set main access cover latches and lift cover to open.
 - b. Locate Voltage Selector Switch access door (Figure 2, Item 3) on top of Frequency Converter (A8) (Figure 2, Item 4). Open access door and place Voltage Selector Switch in desired position (120/240 volts, 3-wire or 120 volts, 2-wire). Close and lock door.

NOTE

Voltage Selector Switch access door (Figure 2, Item 3) must be closed securely or generator set will not produce power.

- c. Locate Voltage Selector Switch access door (Figure 2, Item 3) on top of Frequency Converter (A8) (Figure 2, Item 4). Open access door and place Voltage Selector Switch in desired position (120/240 volts, 3-wire or 120 volts, 2-wire). Close and lock door.
3. If auxiliary fuel source is connected, place the AUX FUEL switch (Figure 2, Item 5) in ON position.
4. If auxiliary power is required, connect auxiliary power cable to NATO SLAVE RECEPTACLE (Figure 2, Item 6).

WARNING

If battery is not installed, battery cable ends must be isolated from each other, and positive end must be isolated from ground. Failure to isolate battery cable ends could result in severe electrical discharge. Failure to observe this warning could result in severe personal injury or death.

5. If temperature is below +5 °F (-15 °C), see WP 0006.

CAUTION

Crank engine no longer than 15 seconds each time. Damage to starter motor can occur. Wait 15 seconds before attempting to crank again. If engine does not run after third attempt, see WP 0007, Table 1.

6. Ensure DC CIRCUIT BREAKER (Figure 2, Item 9) is pushed in. Ensure EMERGENCY STOP button (Figure 2, Item 13) is pulled out. Place START/RUN/STOP switch (Figure 2, Item 7) in RUN position. Ensure LOW OIL PRESSURE indicator (Figure 2, Item 16) is illuminated. Place START/RUN/STOP switch (Figure 2, Item 7) in START position to crank engine. Switch is spring-loaded and must be held in place. Release switch to RUN position once engine starts and AC voltage is indicated, but no longer than 5 seconds after engine starts.
7. Adjust generator set voltage, as required, using VOLTAGE ADJUST potentiometer (Figure 2, Item 10).
8. Place CIRCUIT INTERRUPTER switch (Figure 2, Item 11) in CLOSED position. The CIRCUIT INTERRUPTER indicator (Figure 2, Item 12) will illuminate when load is connected.

GENERATOR SET SHUT DOWN

1. Place CIRCUIT INTERRUPTER switch (Figure 2, Item 11) in OPEN position. The CIRCUIT INTERRUPTER indicator light (Figure 2, Item 12) will go out when load is disconnected. Allow unit to run in this condition for approximately 3-5 minutes to cool down engine.
2. Place START/RUN/STOP switch (Figure 2, Item 7) in STOP position to shut down generator set.

OPERATING PROCEDURES – CONTINUED

3. Pull out DC CIRCUIT BREAKER (Figure 2, Item 9).

EMERGENCY SHUT DOWN

To stop generator set under emergency conditions, push EMERGENCY STOP button (Figure 2, Item 13). Place START/RUN/ STOP switch (Figure 2, Item 7) in STOP position. The EMERGENCY STOP button is maintained in the STOP position and must be pulled out prior to restarting the generator set.

OPERATION OF AUXILIARY EQUIPMENT

See Fuel, for operation.

OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES

See WP 0002, Figure 4 for operating instruction plates, information plates, data plates, warning plates, and caution plates found on the generator set.

END OF TASK**END OF WORK PACKAGE**

OPERATOR MAINTENANCE

OPERATION UNDER UNUSUAL CONDITIONS

INITIAL SETUP:**References**

WP 0002
 WP 0005
 WP 0007
 WP 0016
 WP 0131

Equipment Condition

Generator set shut down, cool, and properly grounded (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Drawings Required

Generator Set Electrical Schematic (FO-1)

UNUSUAL ENVIRONMENT/WEATHER**BATTLE SHORT OPERATION****WARNING**

Generator battle short mode is for emergency operation only. Prolonged use under this mode could damage the generator set or pose potential shock hazard to personnel. Failure to observe this caution could cause severe damage to generator set.

1. If the generator set is malfunctioning, it can still operate. The BATTLE SHORT switch (WP 0005, Figure 2, Item 14) allows the generator set to override anticipated system fault shutdowns to maintain operation. The overload short circuit fault cannot be overridden.
2. To operate the generator set in battle short mode, place BATTLE SHORT switch (WP 0005, Figure 2, Item 14) in ON position while generator set is running.

UNUSUAL ENVIRONMENT / WEATHER

1. The generator set is designed to operate within a temperature range of -25 to +120 °F (-32 to +49 °C). The set should not be operated in temperatures outside this range.
2. If temperature is below +5 °F (-15 °C), activate engine preheat system as follows:
 - a. Ensure DC CIRCUIT BREAKER (WP 0005, Figure 2, Item 9) is pushed in. Ensure EMERGENCY STOP button (Figure 2, Item 13) is pulled out. Place START/RUN/STOP switch (Figure 2, Item 7) in RUN position.
 - b. Place PREHEAT switch (Figure 2, Item 8) in ON position. Hold for 30 seconds if temperature is below +5 °F (-15 °C).
 - c. Continue to hold PREHEAT switch (Figure 2, Item 8) in ON position while cranking engine (Step d). Release PREHEAT switch once engine has started and has reached operating speed
 - d. If operating in very dusty or hot conditions, perform PMCS more frequently (see WP 0016, Table 1).
 - e. In dusty and dry environments, change air filter and oil sooner than is recommended in lubrication instructions.

UNUSUAL ENVIRONMENT/WEATHER – CONTINUED**CAUTION**

Crank engine no longer than 15 seconds each time. Damage to starter motor can occur. Wait 15 seconds before attempting to crank again. If engine does not run after third attempt, see WP 0007, Table 1.

- f. Place START/RUN/STOP switch (Figure 2, Item 7) in START position to crank engine. Switch is spring loaded and must be held in place. Release switch to RUN position once engine starts.
3. Altitude also plays a role in the performance of the generator set. See the KILOWATT CAPACITY plate (WP 0002, Figure 4) for generator set load derating.
4. The generator set performs in heavy rain or snow; however, the gaskets on the cover assembly must be checked to ensure they are properly installed and functioning. To allow cooling and combustion air to flow freely, clear any snow from around generator set. The cooling air for the Frequency Converter (A8) enters the generator set from the bottom. Make sure air can flow under the generator set.

MANUAL STARTING**CAUTION**

Remove auxiliary fuel line before manually starting generator set. Make sure recoil starter rope is not close to any of the fuel lines.

1. Push in DC CIRCUIT BREAKER (Figure 1, Item 7).
2. Pull out EMERGENCY STOP button (Figure 1, Item 8).
3. Place START/RUN/STOP switch (Figure 1, Item 5) in RUN position.
4. Open generator set main access cover.
5. Lift actuator lever (Figure 1, Item 1) to maximum fuel position and push in lock pin (Figure 1, Item 2) on side of governor actuator (Figure 1, Item 9). Release actuator lever (Figure 1, Item 1). Engine speed will temporarily be controlled by the mechanical governor.
6. Pull out recoil starter handle (Figure 1, Item 3) to the point where you feel strong resistance. Then return handle to starting position.
7. Pull decompression lever (Figure 1, Item 4) down. The lever will return automatically.
8. With both hands briskly pull out recoil starter handle (Figure 1, Item 3). Pull hard and fast, all the way out. Engine will start.
9. After engine starts, reset low oil pressure fault, if necessary, by pressing fault reset button.
10. Place the START/RUN/STOP switch in the START position momentarily to engage control circuitry. Return to RUN position.

NOTE

If generator set has an operational battery installed, it will be necessary to reset the LOW OIL PRESSURE (Figure 1, Item 10) fault on the malfunction indicator module before releasing the lock pin. If fault is not reset, generator set will shutdown.

11. Once engine has started, lift actuator lever (Figure 1, Item 1) to maximum fuel position (allowing lock pin to come out). Slowly lower lever, allowing electronic governor to take over.

UNUSUAL ENVIRONMENT/WEATHER – CONTINUED

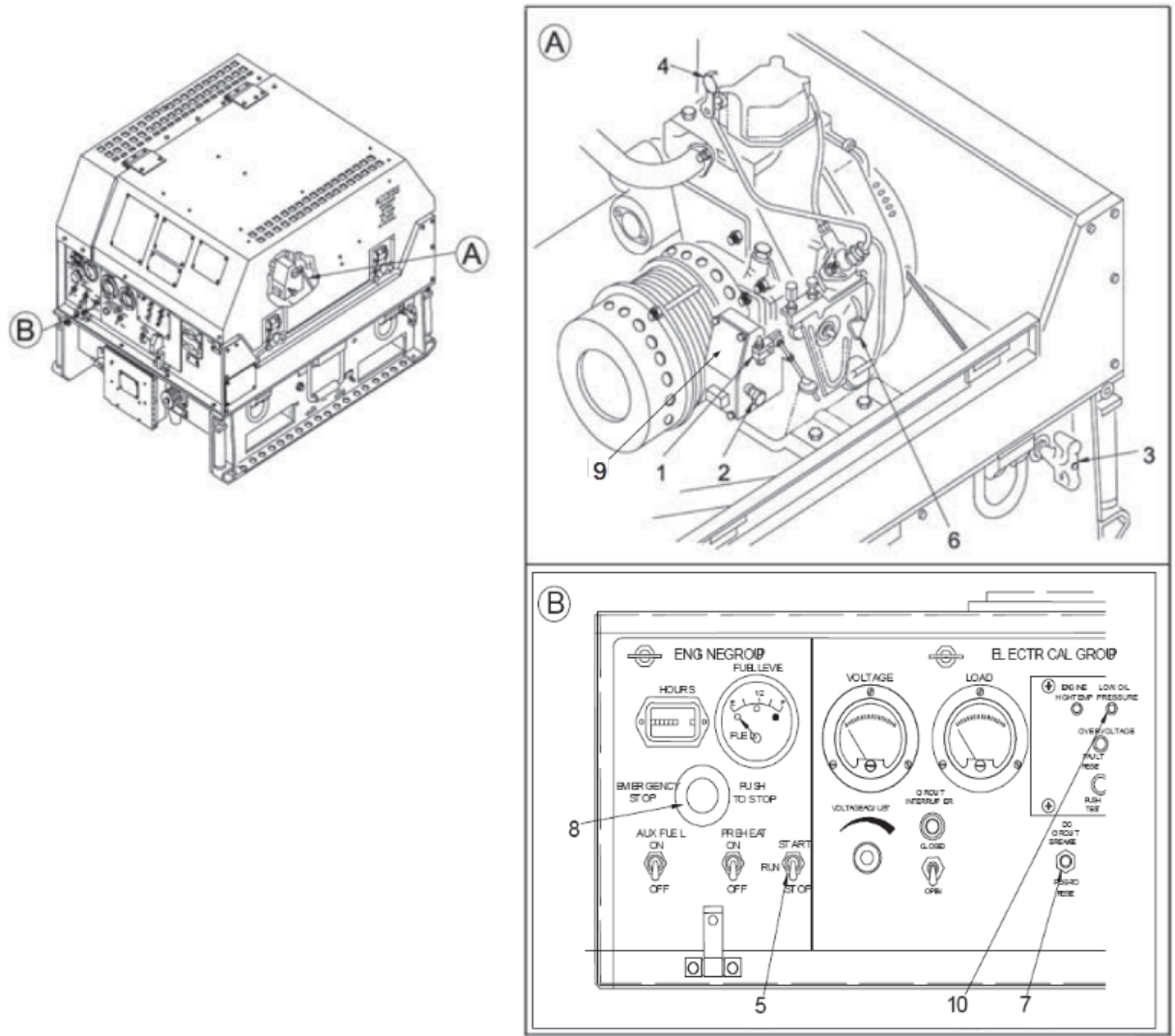


Figure 1. Manual Engine Starting.

Table 1. Figure 1 Legend.

ITEM	DESCRIPTION
1	Governor Actuator Lever
2	Lock Pin
3	Recoil Starter Handle
4	Decompression Lever
5	START/RUN/STOP Switch
6	Speed Control Knob
7	DC Circuit Breaker

UNUSUAL ENVIRONMENT/WEATHER – CONTINUED**Table 1. Figure 1 Legend. – Continued**

ITEM	DESCRIPTION
8	Emergency STOP button
9	Actuator Governor
10	Low Oil Pressure Fault Malfunction Indicator

END OF TASK**INTERIM CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN) DECONTAMINATION PROCEDURES**

The generator set can be operated by personnel wearing Chemical, Biological, Radiological, and Nuclear (CBRN) protective clothing, without special tools or support equipment. See FM 3-5, NBC Decontamination (WP 0131, Field Manuals), for information on decontamination procedures. Below are specific procedures for the generator set:

1. Control-panel-indicator sealing gaskets, gaskets at output terminal door, control-panel gaskets, rubber tubing in the engine compartment, the muffler thermal blanket, coverings for electrical conduits, and fuel drain tubing will absorb and retain chemical agents. Replacement of these items is the recommended method of decontamination.
2. Lubricants, fuel, or battery fluid may be present on the external surfaces of the generator set or components due to leaks or normal operation. These fluids will absorb CBRN agents. The preferred method of decontamination is removal of these fluids, using conventional decontamination methods in accordance with FM 3-5 (WP 0131, Field Manuals).
3. Continued decontamination of external generator set surfaces with Supertropical Bleach (STB) and Decontaminating Solution Number 2 (DS2) will degrade clear plastic indicator coverings to a point where reading indicators will be impossible. This problem will become more evident for soldiers wearing protective masks. The use of STB or DS2 decontaminates in these areas should be minimized. Indicators should be decontaminated with warm, soapy water.
4. External surfaces of the control-panel assembly marked with painted or stamped lettering will not withstand repeated decontamination using STB or DS2 without degradation of the lettering. The recommended method of decontamination for these areas is warm, soapy water.
5. Below are the areas that will entrap contaminants, making efficient decontamination extremely difficult:
 - The space behind knobs and switches on the control panel
 - Exposed heads on screws
 - Hinged areas of access doors
 - Spaces behind externally mounted equipment specification data plates
 - Areas around external oil drain and fuel drain valves
 - Fuel caps
 - The output load terminal access door
 - The NATO slave receptacle
 - Areas around tie-down and lifting rings

INTERIM CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN) DECONTAMINATION PROCEDURES – CONTINUED

- External screens covering ventilation areas
6. Replacement of these items, if available, is the preferred method of decontamination. While stressing the importance of thoroughness and the probability of some degree of continuing contact and vapor hazard, conventional decontamination methods should be used on the areas listed above.
 7. In a CBRN contamination environment, the generator set should be operated with main access cover closed to reduce the effects of contamination.
 8. The use of overhead shelters or chemical protective covers is recommended as an additional means of protection against contamination, in accordance with FM 3-5 (WP 0131, Field Manuals). If using covers, care should be taken to provide adequate space for airflow and exhaust.
 9. See FM 3-3 and 3-4 (WP 0131, Field Manuals) for additional Army CBRN information. All other services will use their applicable directives.

END OF TASK

END OF WORK PACKAGE

CHAPTER 3

OPERATOR TROUBLESHOOTING PROCEDURES

OPERATOR MAINTENANCE

OPERATOR TROUBLESHOOTING INDEX

INTRODUCTION

This section contains operator troubleshooting procedures for the generator set. Each malfunction or problem symptom is addressed, followed by a series of inspections or tests necessary to determine the probable cause and corrective action.

TROUBLESHOOTING

- a. This chapter does not list all possible malfunctions that may occur, nor does it list all tests or inspections that may be performed or all corrective actions for each malfunction. Only those checks and tests authorized for the operator level are covered. If a malfunction is not listed, or is not remedied by corrective actions, notify field maintenance personnel.
- b. If a malfunction or failure occurs during operation or performance check, see Table 1 for the problem and applicable troubleshooting procedure. Then go to WP 0008, Table 1 for test/inspection procedures and corrective actions.

SYMPTOM TROUBLESHOOTING PROCEDURES INDEX

Malfunction/Symptom	Troubleshooting Procedure
1. Engine fails to crank	Malfunction 1
2. Engine cranks but fails to start	Malfunction 2
3. Engine starts and stops	Malfunction 3
4. Generator set fails to build up to rated voltage	Malfunction 4
5. Generator set fails to supply power to the load	Malfunction 5
6. ENGINE HIGH TEMP indicator illuminates	Malfunction 6
7. LOW OIL PRESSURE indicator illuminates during operation	Malfunction 7
8. NO FUEL indicator illuminates	Malfunction 8
9. Generator set causes radio interference	Malfunction 9
10. Engine emits white smoke	Malfunction 10
11. Engine emits black smoke	Malfunction 11
12. Engine fails to start in cold weather	Malfunction 12
13. No power at convenience receptacle	Malfunction 13
14. Engine fails to stop when EMERGENCY STOP button is pressed or when START/RUN/STOP switch is in STOP position	Malfunction 14

END OF WORK PACKAGE

OPERATOR MAINTENANCE

OPERATOR TROUBLESHOOTING PROCEDURES

INITIAL SETUP:

References

WP 0001
WP 0002
WP 0004
WP 0005
WP 0006
WP 0010
WP 0011

Equipment Condition

Generator set shut down, cool, and properly grounded (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Drawings Required

Generator Set Electrical Schematic (FO-1)

TROUBLESHOOTING PROCEDURE(S)

OPERATOR TROUBLESHOOTING PROCEDURES

WARNING

High voltage is produced when generator set is being operated. Use care when working around an open control panel when generator set is on. Improper operation of generator set or failure to follow this warning could result in severe personal injury or death by electrocution.

WARNING

High voltage is produced when generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Do not ground yourself in standing water. Never attempt to connect or disconnect load cables while the generator set is running. Failure to comply may cause injury or death to personnel.

WARNING

DC voltages are present at generator set electrical components even with the generator set shut down. Avoid shorting any positive terminal with ground or negative. If no DC voltage is required, always disconnect DC power source to the generator set before working on it. Failure to observe this warning could result in severe personal injury or death by electrocution.

WARNING

Never attempt to connect or disconnect load cables while generator set is running. Failure to observe this warning could result in severe personal injury or death by electrocution.

WARNING

Never work alone when reaching into generator set to service or adjust it. Be sure to work with someone who could provide aid in case of an emergency. Failure to observe this warning could result in severe personal injury or death.

TROUBLESHOOTING – CONTINUED**WARNING**

Shut down generator set at first sign of failure. Continued operation could result in injury to personnel and will cause damage to equipment. If generator set is shut down by activation of a safety device, do not operate again until cause of shut down has been determined and eliminated. Failure to observe this warning could result in severe personal injury or death.

WARNING

Fuel used in this generator set is combustible and toxic to skin, eyes, and respiratory tract. Avoid repeated or prolonged contact. Handle only in a well-ventilated area. Keep away from sparks, open flames, or other sources of ignition. Do not splash fuel on hot components. Do not fuel generator set while it is operating. Do not overfill the tank. Ensure generator set is properly grounded before fueling. Ensure approved gloves and face shield are worn during handling. Failure to observe this warning could result in personal injury and equipment damage due to potential fuel ignition and possible explosion. Ensure approved gloves and face shield are worn during handling. Failure to observe this warning could result in severe personal injury or death.

WARNING

Avoid contacting metal items with bare skin in extreme cold weather. Failure to observe this warning could result in severe personal injury or death.

WARNING

Metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry and do not wear loose clothing when working on equipment. Failure to comply may cause injury or death to personnel.

WARNING

Operating the generator set exposes personnel to a high noise level. Hearing protection must be worn when operating or working near the generator set when the generator set is running. Failure to comply with this warning can cause hearing damage to personnel.

WARNING

Make sure personnel are familiar with generator set before operating. Follow proper procedures. Failure to observe this warning could result in damage to equipment and could also result in severe personal injury or death.

SYMPTOM

ENGINE FAILS TO CRANK

MALFUNCTION

START/RUN/STOP switch is off.

CORRECTIVE ACTION

- STEP 1. Pull out EMERGENCY STOP button to disengage.
- STEP 2. Place START/RUN/STOP switch in START position.

TROUBLESHOOTING – CONTINUED**MALFUNCTION**

Circuit breaker is tripped.

CORRECTIVE ACTION

STEP 1. Reset DC CIRCUIT BREAKER by depressing pushbutton.

MALFUNCTION

Battery has loose connections.

CORRECTIVE ACTION

STEP 1. Check battery wires for proper/secure connection. Tighten connections as needed.

STEP 2. Notify Field Level maintenance if cables are damaged or corroded.

MALFUNCTION

Other faulty conditions are present.

CORRECTIVE ACTION

STEP 1. Check malfunction indicator module for system fault light. See applicable troubleshooting procedure for fault condition.

STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

ENGINE CRANKS BUT FAILS TO START

MALFUNCTION

Engine temperature is too cold.

CORRECTIVE ACTION

STEP 1. Place PREHEAT switch in proper position for cold weather operation.

STEP 2. Try to restart once engine reaches proper temperature.

MALFUNCTION

Governor speed control knob is not functioning properly.

CORRECTIVE ACTION

STEP 1. Check that mechanical governor speed control knob is in START position and tightened.

STEP 2. Adjust speed control knob and tighten as needed (WP 0006, Figure 1, Item 6).

STEP 3. If governor speed control knob continues to malfunction, notify Field Level maintenance.

TROUBLESHOOTING – CONTINUED**MALFUNCTION**

Governor actuator lever does not release properly.

CORRECTIVE ACTION

- STEP 1. With START/RUN/STOP switch in RUN position, ensure governor actuator lever (WP 0006, Figure 1, Item 1) is releasing from magnet.
- STEP 2. Press FAULT RESET pushbutton to reset fault indicator module.
- STEP 3. If actuator level does not release, notify Field Level maintenance.

MALFUNCTION

Fuel level is low.

CORRECTIVE ACTION

- STEP 1. Check fuel tank level (WP 0011, Fuel System) and service fuel tank as required.
- STEP 2. Press FAULT RESET pushbutton to reset fault indicator module.

MALFUNCTION

System requires AUX FUEL.

CORRECTIVE ACTION

- STEP 1. Place AUX FUEL switch to ON position if operating on AUX FUEL.
- STEP 2. Press FAULT RESET pushbutton to reset fault indicator module.

MALFUNCTION

Crimped or pinched fuel lines.

CORRECTIVE ACTION

- STEP 1. If fuel lines are crimped or pinched, straighten flexible fuel lines as needed.
- STEP 2. If fuel lines are damaged, notify Field Level maintenance.

MALFUNCTION

Water is present in fuel filter/water separator.

CORRECTIVE ACTION

- STEP 1. Check water in fuel filter/water separator by turning valve. Drain as needed.(WP 0011, Fuel Filter/Water Separator)
- STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

ENGINE STARTS AND STOPS

TROUBLESHOOTING – CONTINUED**MALFUNCTION**

Loose electrical connections.

CORRECTIVE ACTION

STEP 1. Check that all electrical connections are properly tightened.

STEP 2. Tighten connections as needed.

MALFUNCTION

Crimped or pinched fuel lines.

CORRECTIVE ACTION

STEP 1. If fuel lines are crimped or pinched, straighten flexible fuel lines as needed.

STEP 2. If fuel lines are damaged, notify Field Level maintenance.

MALFUNCTION

Water is present in fuel filter/water separator.

CORRECTIVE ACTION

STEP 1. Check for water in fuel filter/water separator (WP 0011, Fuel Filter/Water Separator).

STEP 2. Drain water as needed.

MALFUNCTION

Routine checks and maintenance have not been performed.

CORRECTIVE ACTION

STEP 1. Perform Operator PMCS (WP 0010).

STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

GENERATOR SET FAILS TO BUILD UP TO RATED VOLTAGE

MALFUNCTION

VOLTAGE ADJUST rheostat is not properly set.

CORRECTIVE ACTION

STEP 1. Adjust rheostat to achieve rated voltage.

MALFUNCTION

Voltage Selector Switch access door is open.

TROUBLESHOOTING – CONTINUED**CORRECTIVE ACTION**

- STEP 1. Close and secure Voltage Selector Switch access door (WP 0005, Operating Procedures).
- STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

GENERATOR SET FAILS TO SUPPLY POWER TO THE LOAD

MALFUNCTION

CIRCUIT INTERRUPTER switch is open.

CORRECTIVE ACTION

- STEP 1. Check to ensure that CIRCUIT INTERRUPTER switch is in the CLOSED position.

MALFUNCTION

Ground Fault Circuit Interrupter (GFCI) is tripped.

CORRECTIVE ACTION

- STEP 1. Reset GFCI by depressing button (WP 0004, Figure 1).

MALFUNCTION

Load hook-up is not properly set.

CORRECTIVE ACTION

- STEP 1. Match generator voltage output (Voltage Selector Switch position) with load requirement (WP 0005, Operating Procedures).
- STEP 2. Set wiring in accordance with TERMINAL VOLTAGE data plate (WP 0002, Figure 4).

SYMPTOM

ENGINE HIGH TEMP INDICATOR ILLUMINATES

MALFUNCTION

Air inlet ducts are clogged or obstructed.

CORRECTIVE ACTION

- STEP 1. Clear restrictions and blockages.
- STEP 2. Press FAULT RESET push button to reset fault indicator module.

MALFUNCTION

Air inlet grill on recoil starter is clogged or obstructed.

TROUBLESHOOTING – CONTINUED**CORRECTIVE ACTION**

STEP 1. Clear air inlet grill recoil starter of obstructions or blockages.

MALFUNCTION

Air filter is clogged.

CORRECTIVE ACTION

STEP 1. Replace filter as required(WP 0011, Air Filter).

STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

LOW OIL PRESSURE INDICATOR ILLUMINATES DURING OPERATION

MALFUNCTION

Low engine oil.

CORRECTIVE ACTION

STEP 1. Check engine oil level.

- a. Service as required (WP 0001). Press FAULT RESET pushbutton to reset fault indicator module.
- b. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

NO FUEL INDICATOR ILLUMINATES

MALFUNCTION

Fuel tank not properly serviced.

CORRECTIVE ACTION

STEP 1. Service fuel tank as required (WP 0011, Fuel System).

STEP 2. Press FAULT RESET pushbutton to reset fault indicator module.

MALFUNCTION

AUX Fuel switch is not functioning properly.

CORRECTIVE ACTION

STEP 1. If operating on AUX FUEL, check that AUX FUEL switch is in ON position.

- a. Place AUX FUEL switch in ON position. Press FAULT RESET pushbutton to reset fault indicator module.
- b. If symptom still occurs, continue to Step 3.

TROUBLESHOOTING – CONTINUED

STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

GENERATOR SET CAUSES RADIO INTERFERENCE

MALFUNCTION

Terminals and cables are loose.

CORRECTIVE ACTION

STEP 1. Tighten output terminals and cables using load wrench.

MALFUNCTION

Ground wire is loose.

CORRECTIVE ACTION

STEP 1. Check that ground wire is connected tightly.

STEP 2. Tighten connection using load wrench, if needed.

MALFUNCTION

Ground rod is not operating properly.

CORRECTIVE ACTION

STEP 1. Check that ground rod is properly installed. Re-install or replace ground rod as needed.

STEP 2. If symptom still occurs, notify Field level maintenance.

SYMPTOM

ENGINE EMITS WHITE SMOKE

MALFUNCTION

Engine oil level is too high.

CORRECTIVE ACTION

STEP 1. If engine oil level to see if it is too high, refer to Field Level maintenance to drain and service engine oil as needed.

MALFUNCTION

Water is present in fuel filter/water separator.

CORRECTIVE ACTION

STEP 1. Check for presence of water in fuel filter/water separator (WP 0011, Fuel Filter/Water Separator).

TROUBLESHOOTING – CONTINUED

STEP 2. Drain water from fuel filter/ water separator by turning valve.

STEP 3. If symptom still occurs, notify Field level maintenance.

SYMPTOM

ENGINE EMITS BLACK SMOKE

MALFUNCTION

Air filter is clogged.

CORRECTIVE ACTION

STEP 1. Remove filter and inspect (See WP 0011, Air Filter).

STEP 2. Replace filter as required.

MALFUNCTION

Faulty engine exhaust.

CORRECTIVE ACTION

STEP 1. Operate engine at rated load and check to see if engine runs for prolonged periods at idle speed (no load).

STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

ENGINE FAILS TO START IN COLD WEATHER

MALFUNCTION

Engine has not been preheated.

CORRECTIVE ACTION

STEP 1. Place PREHEAT switch to ON position.

MALFUNCTION

Proper fuel for cold weather operation is not being used.

CORRECTIVE ACTION

STEP 1. Use proper fuel as noted on FUEL CAPACITY data plate (See WP 0002).

MALFUNCTION

Fuel lines are clogged, pinched, or frozen.

CORRECTIVE ACTION

STEP 1. Check for clogged or pinched fuel lines. Check for frozen water in fuel lines and filter separator.

TROUBLESHOOTING – CONTINUED

- a. Straighten flexible fuel lines.
- b. If fuel line or filter separator is frozen or damaged, refer to Field level maintenance.

STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

NO POWER AT CONVENIENCE RECEPTACLE

MALFUNCTION

Ground Fault Circuit Interrupter (GFCI) is tripped.

CORRECTIVE ACTION

STEP 1. Reset GFCI by depressing button.

MALFUNCTION

Ten (10) Amp circuit breaker (located on back of GFCI) is tripped.

CORRECTIVE ACTION

STEP 1. Reset circuit breaker.

STEP 2. If symptom still occurs, notify Field Level maintenance.

SYMPTOM

ENGINE FAILS TO STOP WHEN EMERGENCY STOP BUTTON IS PRESSED OR WHEN START/RUN/STOP SWITCH IS IN STOP POSITION.

MALFUNCTION

Actuator level is not making contact with magnet.

CORRECTIVE ACTION

STEP 1. Manually move actuator lever to magnet.

STEP 2. Notify Field Level maintenance if symptom continues.

END OF WORK PACKAGE

CHAPTER 4

OPERATOR MAINTENANCE INSTRUCTIONS

OPERATOR MAINTENANCE

OPERATOR PMCS INTRODUCTION

INITIAL SETUP:

References

WP 0010
WP 0131
WP 0136

Equipment Condition

Generator set shut down, cool, and properly grounded (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INTRODUCTION TO OPERATOR PMCS TABLE

Preventive Maintenance Checks and Services (PMCS) means systematic caring for, inspecting, and servicing of equipment to keep it in good condition and to prevent breakdowns. As generator set operator, your mission is to ensure that the generator set is ready for operation at all times. It must be inspected so that defects can be discovered and corrected before they result in damage or failure.

1. Be sure to perform your PMCS as indicated. Always perform your PMCS in the same order, so it gets to be a habit. Once you have had some practice, you will quickly spot anything wrong.
2. Perform your BEFORE PMCS before you operate the generator set. Pay attention to WARNINGS, CAUTIONS, and NOTES.
3. Perform your DURING PMCS while you operate the generator set. Monitor the generator set and its related components while it is actually being operated. Pay attention to WARNINGS, CAUTIONS, and NOTES.
4. Perform your AFTER PMCS right after operating the generator set. Pay attention to WARNINGS, CAUTIONS, and NOTES.
5. Perform your WEEKLY PMCS once a week.
6. If your equipment does not perform as required, see Chapter 5, Field Troubleshooting Procedures, for possible problems. Use DA Form 2404 or DD Form 5988E, Equipment Inspection and Maintenance Worksheet (WP 0131, Forms), to record any faults you discover before, during, or after operation.

Always observe the WARNINGS and CAUTIONS appearing in your PMCS table. WARNINGS and CAUTIONS appear before applicable procedures. You must observe these WARNINGS and CAUTIONS to prevent serious injury to yourself and others or to prevent your equipment from being damaged.

Explanation of Table Entries

Your Preventive Maintenance Checks and Services (PMCS), WP 0010, Table 1, lists inspections and care required to keep your generator set in good operating condition. It is set up so you can make your BEFORE OPERATION checks as you walk around the generator set.

Item Number Column. The Item No. column lists each check or service in chronological order.

Interval Column. This column tells you when you must do the procedure in the Procedure column.

BEFORE (B) - Checks and services performed prior to the equipment leaving its containment area or performing its intended mission.

DURING (D) - Checks begin when the equipment is being used in its intended mission.

AFTER (A) - Checks and services begin when the equipment is taken out of its mission mode or returned to its containment area.

INTRODUCTION TO OPERATOR PMCS TABLE – CONTINUED

WEEKLY (W) - Check and clean air filter weekly.

MONTHLY (M) - Checks and services to be performed on a monthly basis.

SEMIANNUALLY (S) - Checks and services to be performed on a semiannual basis.

Item to be Checked or Serviced Column. The Item to be Checked or Serviced column directs maintenance personnel to the general area on the generator set where the check or service is to be performed.

Procedure Column. The Procedure column tells you how to do required checks and services. Tolerances, adjustment limits, and instrument readings are included as applicable. When replacement or repair of a component is required, the procedures column will direct you to the appropriate task.

Equipment Not Ready/Available If Column. The Equipment Not Ready/Available If column tells you when your generator set is not operational and why the generator set cannot be used.

If the generator set does not perform as required, see Chapter 5, Field Troubleshooting Procedures.

If anything looks wrong and you cannot fix it, write it on your DA Form 2404 or DD Form 5988E (WP 0131, Forms). IMMEDIATELY report it to your supervisor.

When you perform PMCS, always keep a rag or two handy. Following are checks common to the entire generator set:

1. Keep It Clean. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use approved cleaning solvents (see WP 0136) on all metal surfaces. Use soap and water when you clean rubber or plastic material.
2. Rust and Corrosion. Check components for rust and corrosion. If any bare metal or corrosion exists, clean and apply a thin coat of oil. Report it to your supervisor.
3. Bolts, Nuts, and Screws. Check bolts, nuts, and screws for obvious looseness or to see if they are missing, bent, or broken. You cannot inspect them all with a tool, but look for chipped paint, bare metal, or rust around bolt heads. If you find a bolt, nut, or screw you think is loose, tighten it or report it to your supervisor.
4. Welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to your supervisor.
5. Electric Wires and Connectors. Look for cracked, frayed, or broken insulation. Look for bare wires, and loose or broken connectors. Tighten loose connectors. Report any damaged wires to your supervisor.
6. Hoses and Fluid Lines. Look for wear, damage, and leaks, and make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector can also mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to your supervisor.

When you check for "operating condition," you look at the component to see if it is serviceable.

CLEANING AGENTS**WARNING**

Compressed air is dangerous and could cause serious bodily harm, if protective means or methods are not observed to prevent a chip or particle (of whatever size) from being blown into the eyes or to prevent unbroken skin of the operator or other personnel. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 pounds per square inch gauge (psig). Use it only with effective chip-guarding and personnel protective equipment (industrial safety glasses and full face shield). DO NOT use compressed air to dry parts when solvent cleaners have been used. Failure to observe this warning could result in severe personal injury.

INTRODUCTION TO OPERATOR PMCS TABLE – CONTINUED**WARNING**

Do not use TRICHLOROTRIFLUOROETHANE, TRICHLOROETHANE, and similar chemical solvents for ordinary cleaning of equipment. These substances threaten public health and the environment by destroying ozone in the Earth's upper atmosphere. Use suitable non-hazardous cleaning materials (see WP 0136) such as a clean cloth, water, and mild detergent or an approved substitute solvent, such as isopropyl alcohol. Failure to observe this warning could result in personal injury.

WARNING

Handle solvents as combustible liquids. Do not use near heat, sparks, or flame. Use solvents in well-ventilated areas only. Avoid prolonged breathing of vapor. Avoid bodily contact. Use chemical (solvent-resistant) gloves and chemical splash goggles when using solvent materials. Solvents may be reactive with acids and oxidizers; do not mix or cross-apply with other cleaners or chemicals. An organic vapor respirator with dust and mist filter is recommended when solvent is applied as a spray. Keep containers closed between applications. Provide mechanical ventilation if used in confined spaces. Store cleaning materials in a well-ventilated area away from food or drink. To avoid the possibility of spontaneous combustion, place solvent-saturated waste rags in a sealed metal container after use. Coordinate the use of this material with your supporting Industrial Hygiene and Safety Offices. Ensure you read and understand the Material Safety Data Sheet (MSDS) for the solvent before use. Failure to observe this warning could result in severe personal injury or death.

CAUTION

When cleaning inside generator set, engine must be COLD (same temperature as outside air). DO NOT point water stream directly at any electrical connection. DO NOT use high-pressure water supply system. Damage to engine, electrical system, and other components may result.

NOTE

Use only those authorized cleaning solvents or agents listed in WP 0136, Expendable and Durable Items List.

POWER WASHING**NOTE**

After power washing generator set, allow it to dry out thoroughly. DO NOT START GENERATOR SET UNLESS IT HAS COMPLETELY DRIED AFTER WASHING.

- a. When using a power washer to clean the exterior generator set enclosure, always cover all air ducts and exhaust ports, using waterproof material to prevent damage to components. Cover control box, output panel components, and Frequency Converter (A8). Make sure end of power washing wand is no closer than three feet from generator set. Failure to follow these directions may result in damage to generator set. Use water pressure and volume similar to a standard household water supply (50 psi maximum, 3 gallons per minute). After cleaning, allow generator set to air dry. Do not use compressed air to dry unit. Do not run engine to decrease drying time.
- b. Remove all waterproof material from ducts and other components before starting generator set.

NOTE

Keep cleaning solvents, gasoline, and lubricants away from rubber or soft plastic parts. They will deteriorate material.

INTRODUCTION TO OPERATOR PMCS TABLE – CONTINUED

- c. When cleaning grease buildup or rusty places, use an approved cleaning solvent (see WP 0136). Then apply a thin coat of light oil to affected area.

LEAKAGE DEFINITIONS FOR OPERATOR PMCS. You need to know how fluid leakage affects the generator set. Following are types/classes of leakage an operator needs to know to be able to determine the status of the generator set. Learn these leakage definitions. Remember, when in doubt, notify your supervisor.

WARNING

Class III oil leaks should be reported IMMEDIATELY to your supervisor. Fuel leaks of any kind require immediate system shutdown. Failure to observe this warning could result in severe personal injury or death.

CAUTION

Equipment operation is allowable with Class I or Class II oil leakage. Consideration must be given to fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor. When operating with Class I or II oil leaks, continue to check fluid levels as required in your PMCS.

Table 1. Leakage Definitions.

- | | |
|----------------|---|
| (1) Class I. | Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops. |
| (2) Class II. | Leakage of fluid great enough to form drops, but not enough to cause drops to drip from the item being checked/inspected. |
| (3) Class III. | Leakage of fluid great enough to form drops that fall from the item being checked/inspected. |

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATOR PMCS, INCLUDING LUBRICATION INSTRUCTIONS

INITIAL SETUP:**References**

WP 0006
 WP 0009
 WP 0011
 WP 0025
 WP 0036
 WP 0042
 WP 0136, Table 1, Item 1

Equipment Condition

Generator set shut down, cool, and properly grounded (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Drawings Required

Generator Set Electrical Schematic (FO-1)

Table 1. Operator Preventive Maintenance Checks and Services (PMCS).

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
WARNING High voltage is produced when generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Do not ground yourself in standing water. Never attempt to connect or disconnect load cables while the generator set is running. Failure to comply may cause injury or death to personnel. WARNING Never service or perform maintenance on generator set while engine is running. Always shut down generator set before servicing. Allow engine to cool before handling components. Failure to observe this warning could result in severe personal injury or death. WARNING Check to ensure that all parts of the starter wiring including the wires, and the connection point are completely coated with a layer of adhesive - NSN: 8040-00-117-8510 (WP 0136). Failure to comply may cause damage to the generator set and/or injury to soldiers. NOTE Recharge battery at 90 days and ensure battery is fully charged prior to electrical starting. See WP 0025 for battery recharging procedures.				
1	Before	Overall generator set	a. Inspect for cracks, dents, and corrosion in accordance with WP 0011, Main Access Cover. b. Inspect for loose or missing hardware.	Significant cracks in any generator set component.

Table 1. Operator Preventive Maintenance Checks and Services (PMCS). – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before	Generator set main access cover	a. Inspect main access cover for security of attachment in accordance with WP 0011, Main Access Cover. b. Inspect air intake and exhaust ducts for obstructions and blockages. Clear obstructions and check for damage. c. Check all main access cover gaskets to ensure they fit properly (snugly but not too tightly) and are not torn.	Main access cover is not secure. Latches do not lock, allowing main access cover to rattle excessively. Intake or exhaust is blocked or damaged.
3	Before	Control box and output panel	a. Inspect for secure attachment. Check that hinged panel is closed and locked. b. Inspect switches, meters, indicators, and terminals. Conduct fault lamp test by depressing FAULT RESET/PUSH TEST switch. See WP 0011, Control Box and Output Panel Assemblies. c. Inspect electrical wires for damage, corrosion, or electrical short. Check for bent, broken, or missing pins.	Any switch is not operable or any meter is damaged. Fault indicator is defective or lamp does not light. Wires or connectors are damaged.
4	Before	Convenience receptacle (60 Hz only)	Inspect convenience receptacle for damage. Check for signs of electrical short or corrosion.	Receptacle damaged, shorted, or corroded.
5	Before	NATO Slave Receptacle	Inspect NATO slave receptacle for damage. Check for signs of electrical short or corrosion.	Receptacle damaged, shorted, or corroded.
6	Before	Output panel	a. Inspect output panel door for security. Check locking latch operates properly. b. Check load and ground terminals for security of attachment. Inspect for signs of electrical short or corrosion. c. Check ground rod cable for proper installation. Check for correct connection.	Terminals are loose, damaged, disconnected, shorted, or corroded. Set is not grounded properly.
7	Before	Exhaust system	a. Inspect exhaust system for cracks, holes, or dents. Ensure secure attachment. b. Inspect muffler for damage.	Exhaust system is damaged to the extent it will affect operation or safety of personnel.

Table 1. Operator Preventive Maintenance Checks and Services (PMCS). – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before	Fuel fill ports	a. Inspect fill neck strainer for damage. Remove obstructions or blockage. b. Inspect vented fuel cap and auxiliary fuel connection for damage or leakage. Check that caps are securely attached.	Strainer is damaged. Fuel cap is damaged to the point where fuel leakage is likely.
9	Before	Fuel tank and hoses	Inspect generator set and engine fuel system components for damage or leaks, in accordance with WP 0011, Fuel System.	Fuel leaks of any kind are present. Fuel line is cut or damaged.
10	Before	Fuel filter/water separator	Inspect and drain filter/separator in accordance with WP 0011, Fuel Filter/ Water Separator.	Water and fuel are mixed. Separator is damaged or leaking.
11	Before	Skid base	a. Inspect oil and fuel drain ports for damage. Ensure drain plugs are securely attached. b. Inspect lifting handles and tiedown rings for damage. Check to see they are securely attached. c. Inspect engine vibration mounts for cracks, wear, or deterioration.	Drain ports are damaged to the extent they will leak. Lifting handles do not operate or are loose. Vibration mounts are damaged or worn.
12	Before	Battery	a. Open main access cover. Inspect battery cables for corrosion, evidence of electrical short, and damage. Check for cuts, tears, or exposed wires. b. Inspect battery terminals and battery posts for corrosion and damage. Check for security of attachment and that battery terminal quick release feature is functional. c. Inspect battery for cracks, corrosion, or evidence of leakage.	If a battery does not provide power to the electrical starter motor, the generator is still mission-capable. See WP 0006, Manual Starting for manual starting.
13	Before	Frequency Converter (A8)	Open main access cover. Inspect Frequency Converter (A8) and area around it for signs of water. If water is present, thoroughly dry out Frequency Converter (A8) before starting generator.	Water is in Frequency Converter (A8).

Table 1. Operator Preventive Maintenance Checks and Services (PMCS). – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
14	Before	Engine oil	a. Open main access cover. Remove oil fill cap and inspect oil level. If servicing is required, refer to field level maintenance. b. Inspect areas around oil filter and oil drain hose for leaks, damage, and loose or missing parts. c. Inspect for contamination.	Class III oil leaks, damage, or loose or missing parts are present. See leakage class definitions (WP 0009, Leakage Definitions for Operator PMCS). Oil shows signs of contamination.
15	Before	Engine air filter	Inspect air filter for clogs (see WP 0011, Air Filter).	Filter is clogged.
16	Before	Engine alternator compartment	Inspect electrical wires for damage, corrosion, or electrical short. Check for bent, broken, or missing terminals.	Damaged wires, or broken or missing terminals.
17	During	VOLTAGE and LOAD meters (control panel)	Monitor output levels during generator set operation. Adjust output, as required, using VOLTAGE ADJUST potentiometer. See WP 0036 and WP 0042.	Adjustments cannot be made.
18	During	FUEL LEVEL Meter (located on control panel)	a. Monitor fuel level while generator is running. b. Replenish fuel as follows: Shut down generator set. Remove fuel fill cap and fill with diesel fuel. Replace fuel fill cap.	Fuel level is empty or level meter is inoperable.
19	During (After 8 hours of constant use)	Engine oil	a. Shut down generator set. Open main access cover. b. Remove engine oil fill cap and check oil level. Service, as required, in accordance with WP 0011.	Oil level is at or below minimum oil level mark on dipstick.
20	During (After 8 hours of constant use)	Fuel filter/water separator	a. Shut down generator set. Open main access cover. b. If water is present, drain water from fuel filter/water separator by turning valve.	Water and fuel are mixed. Separator is damaged or leaking.
21	After	Fuel lines	Open main access cover. Inspect all fuel lines for cuts, tears, loose connections, or evidence of leakage.	Fuel leaks of any kind are present. Lines are cut, torn, loose, or damaged.

Table 1. Operator Preventive Maintenance Checks and Services (PMCS). – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
22	After	Overall generator set	a. Inspect for cracks, dents, and corrosion, in accordance with WP 0011, Main Access Cover. b. Inspect for loose hardware.	Cracks allow water to enter Frequency Converter (A8) or dents adversely affect operation of generator set.
23	After	Data plates	Check for legibility.	N/A
24	After	Engine	a. Inspect engine fuel piping for damage, kinks, or evidence of leakage. b. Inspect hoses for evidence of wear, cracking, or deterioration. Check connections for tightness.	Fuel leaks of any kind are present. Pipes or hose are damaged.

MANDATORY REPLACEMENT PARTS

There are no replacement parts required for these PMCS procedures.

LUBRICATION INSTRUCTIONS

In dusty and dry environments, change oil and air filter ahead of schedule to reduce generator set problems.

1. These lubrication instructions are for operator level personnel. Lube intervals (on-condition or hard time) are based on normal operation. Lube more during constant use and less during inactive periods. Use correct grade of lubricant for seasonal temperature expected.
2. Always wipe clean all oil filler components before starting your lube service. Use correct type or grade of oil. Overfilling will cause spillage and harm engine components.
3. For equipment under manufacturer's warranty, hard-time oil service intervals must be followed. Intervals must be shortened if lubricants are known to be contaminated or if operation is under adverse conditions (such as longer-than-usual operating hours, extended idling periods, or extreme dust).
4. Remove engine oil fill cap (Figure 1, Item 1) from engine block (Figure 1, Item 2). Remove O-ring (Figure 1, Item 3).
5. Inspect oil fill cap (Figure 1, Item 1) for obvious damage. Check to see oil level gauge (Figure 1, Item 4) is securely attached to cap. Inspect for corrosion.
6. Inspect O-ring (Figure 1, Item 3) for cuts, tears, or permanent set. Replace O-ring if it does not properly seal.
7. Using a clean rag, inspect area around oil fill port for evidence of leakage. Clean area of dirt and accumulated grime.
8. Apply a light coat of lubricating oil to O-ring (Figure 1, Item 3) and install into oil fill port.
9. Insert engine oil fill cap (Figure 1, Item 1) into engine block (Figure 1, Item 2), but do not screw in.

10. Remove oil fill cap (Figure 1, Item 1) from engine block (Figure 1, Item 2) and read oil level. If not between hash marks add oil. Engine oil should be no higher than the 2nd thread below the top of the fill port in the engine block (Figure 1, Item 2).
11. Insert engine oil fill cap (Figure 1, Item 1) into engine block (Figure 1, Item 2) and tighten.

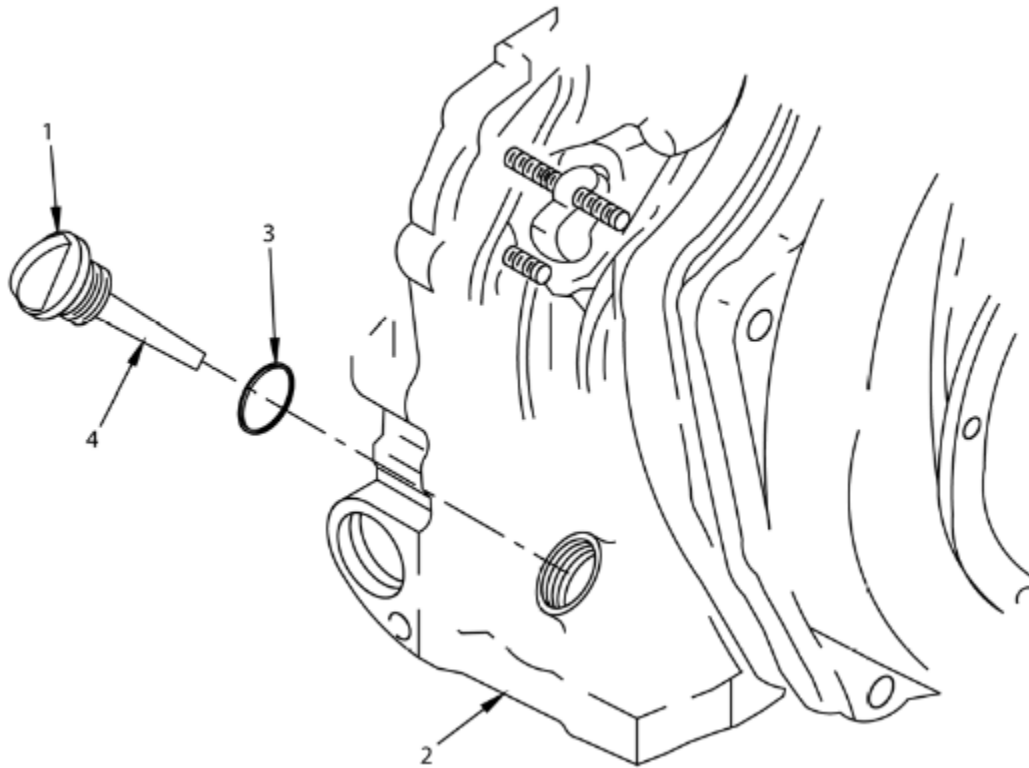


Figure 1. Oil Fill Cap.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

OPERATOR MAINTENANCE INSTRUCTIONS

INITIAL SETUP:

Equipment Condition

Generator set shut down, cool (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle
(WP 0066)

GENERAL

This work package contains information on generator set maintenance tasks that are the responsibility of the operator. If a procedure is not located in this chapter, the operator is not authorized to perform it.

INSPECTION OF INSTALLED ITEMS

Main Access Cover

WARNING

Never service or perform maintenance on generator set while engine is running. Always shut down generator set before servicing. Allow engine to cool before handling components. Failure to observe this warning could result in severe personal injury or death.

1. Inspect main access cover for missing or loose components, cracks, dents, or other damage.
2. Check main access cover latches to ensure they are properly secured. Check that latches can be easily opened, that they are not stuck. Ensure latches lock main access cover securely.
3. Open main access cover. Check that supports hold main access cover in place. Inspect main access cover insulating material for damage and to see if it is securely attached. Close main access cover, and lock using latches.
4. If damage is found, notify field level maintenance for repair.

END OF TASK

CONTROL BOX AND OUTPUT PANEL ASSEMBLIES

1. Inspect control panel switches for ease of operation. Ensure switches spring back to position.
2. Clean HOURS meter, FUEL LEVEL meter, and VOLTAGE meter with a clean dry cloth. Inspect them for broken glass or improper indication.
3. With START/RUN/STOP switch in RUN position, conduct fault module indicator self-test by depressing FAULT RESET/PUSH TEST pushbutton. All indicator lights should illuminate.
4. Open control panel. Check rear of controls and indicators for obvious damage and evidence of electrical short. Inspect sealing gasket for cuts and tears. Ensure gaskets are securely attached. Close control panel.
5. Inspect convenience receptacle cover and ensure it is securely attached. Inspect NATO slave receptacle for damage. Make sure receptacle cover is securely attached.

CONTROL BOX AND OUTPUT PANEL ASSEMBLIES – CONTINUED

6. Inspect load and ground terminals for cracks, missing surge arrestors, or other obvious damage.
7. If damage is found, notify field level maintenance for repair.

END OF TASK**FUEL SYSTEM**

1. Open main access cover and inspect inside of enclosure assembly for evidence of fuel leakage. Inspect fuel tank for signs of damage. Check that tank is securely attached to skid base.
2. Inspect fuel hoses for cuts, tears, or evidence of deterioration. Check that hoses are securely fastened to fittings.
3. Close main access cover and lock using latches.
4. Inspect fuel tank fill cap and auxiliary fuel connection cap to ensure they are securely attached.
5. Visually inspect inside of filler neck for sufficient fuel in tank.
6. Remove fuel-tank fill cap from filler neck. Remove fuel strainer and inspect for collected contaminants. Clean strainer and replace. Replace fuel-tank fill cap and tighten.
7. If damage is found, notify field level maintenance for repair.

END OF TASK**FUEL FILTER/WATER SEPARATOR**

1. Open main access cover to gain access to fuel filter/water separator.
2. Inspect fuel filter/water separator drain valve for damage or evidence of leakage. If leak or damage is found, notify field level maintenance for repair.
3. Inspect fuel filter/water separator bowl for water. Drain water by turning valve. After water is drained, close valve. Close main access cover and lock, using latches.

END OF TASK**AIR FILTER**

1. Unlock main access cover as needed to gain access to air filter.
2. Remove cover (Figure 1, Item 1) from air filter housing (Figure 1, Item 2) by removing wing nut (Figure 1, Item 3) and washer (Figure 1, Item 4). Remove filter (Figure 1, Item 5) from housing (Figure 1, Item 2).
3. Inspect air filter for dirt, clogging, or obstruction. Replace as required. Check air filter rubber gasket to ensure it is secure.
4. Install new filter (Figure 1, Item 5) into housing (Figure 1, Item 2). Replace cover (Figure 1, Item 1) onto housing, using wing nut (Figure 1, Item 3) and washer (Figure 1, Item 4).
5. Close main access cover and lock in place, using latches.

AIR FILTER – CONTINUED

NOTE

Top configuration represents placement of air filter on engine L70AE-DEGFR. Bottom configuration represents placement of air filter on engine L70N6EZ0T9EAFD.

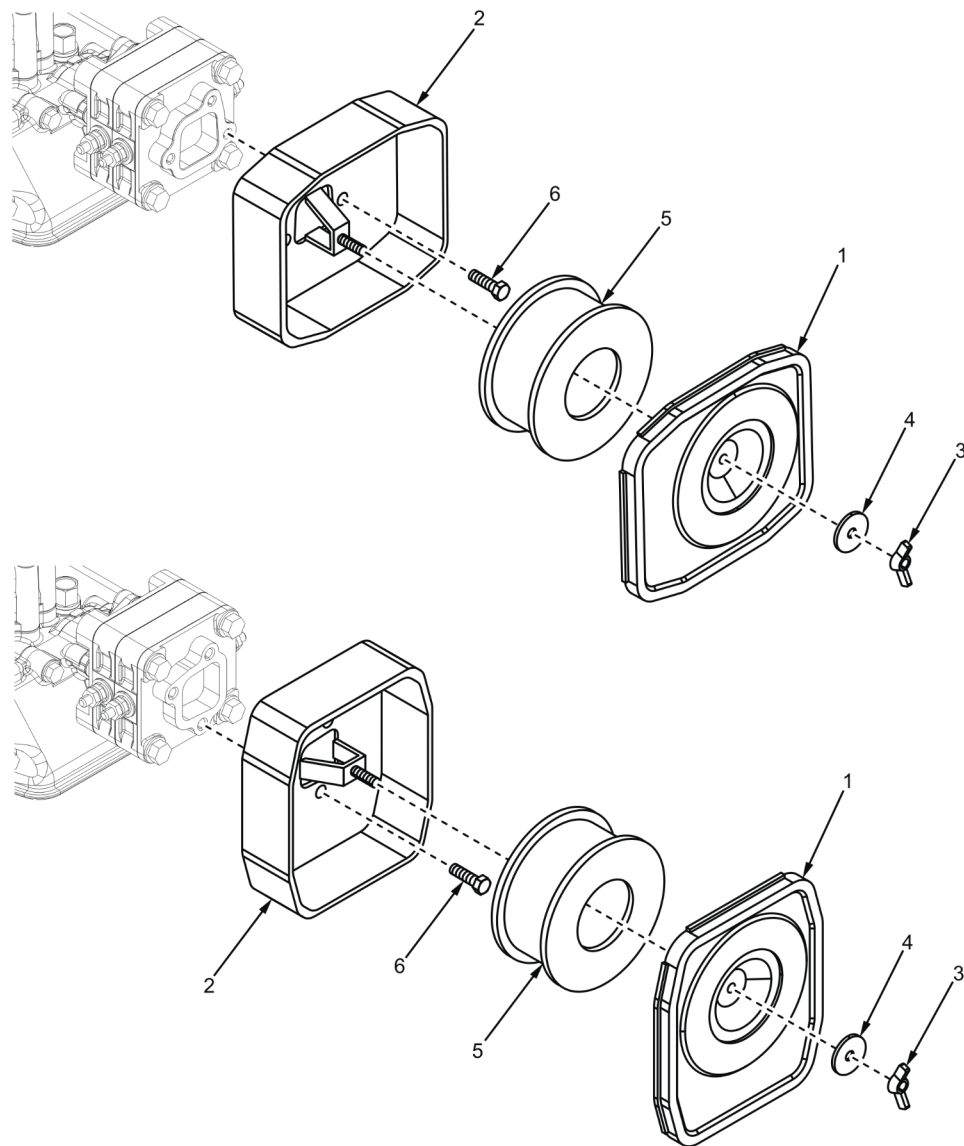


Figure 1. Air Filter Replacement.

END OF TASK

END OF WORK PACKAGE

CHAPTER 5

FIELD TROUBLESHOOTING PROCEDURES

FIELD MAINTENANCE
FIELD TROUBLESHOOTING INDEX

INTRODUCTION

This work package contains field level troubleshooting procedures and tests for the generator set. Each malfunction or trouble symptom is addressed, followed by a series of inspections or tests necessary to determine the probable cause and corrective action.

TROUBLESHOOTING

- a. This chapter does not list all possible malfunctions that may occur, all tests or inspections that may be performed, or all corrective actions for each malfunction. Only those checks and tests authorized for field level maintenance are covered. If a malfunction is not listed, or is not remedied by corrective actions, notify personnel at a higher maintenance level.
- b. Prior to using the troubleshooting table, be sure you have performed all normal operational checks. See the system electrical schematic (Figure FO-1), system wiring diagram (Figure FO-2), generator set wiring harness diagrams (Figures FO-3 and FO-4), control panel wiring harness diagrams (Figures FO-5 and FO-6), and diagnostic test points (Figure 1) for assistance in troubleshooting electrical components. Perform continuity checks on suspect wiring and harnesses as required, using these schematics and diagrams, using these schematics and diagrams.
- c. These troubleshooting procedures assume that electrical wires are undamaged and wiring harnesses are operable. Conduct continuity checks on suspect wiring and harnesses, as required, prior to performing troubleshooting procedures in WP 0013, Table 1. See Table 1, Field Level Symptom Index, for determining applicable troubleshooting procedure located in WP 0013, Table 1.
- d. Perform all correction actions listed for each malfunction.
- e. See TM 9-2815-257-24 for troubleshooting the diesel engine and its components.

INTRODUCTION – CONTINUED

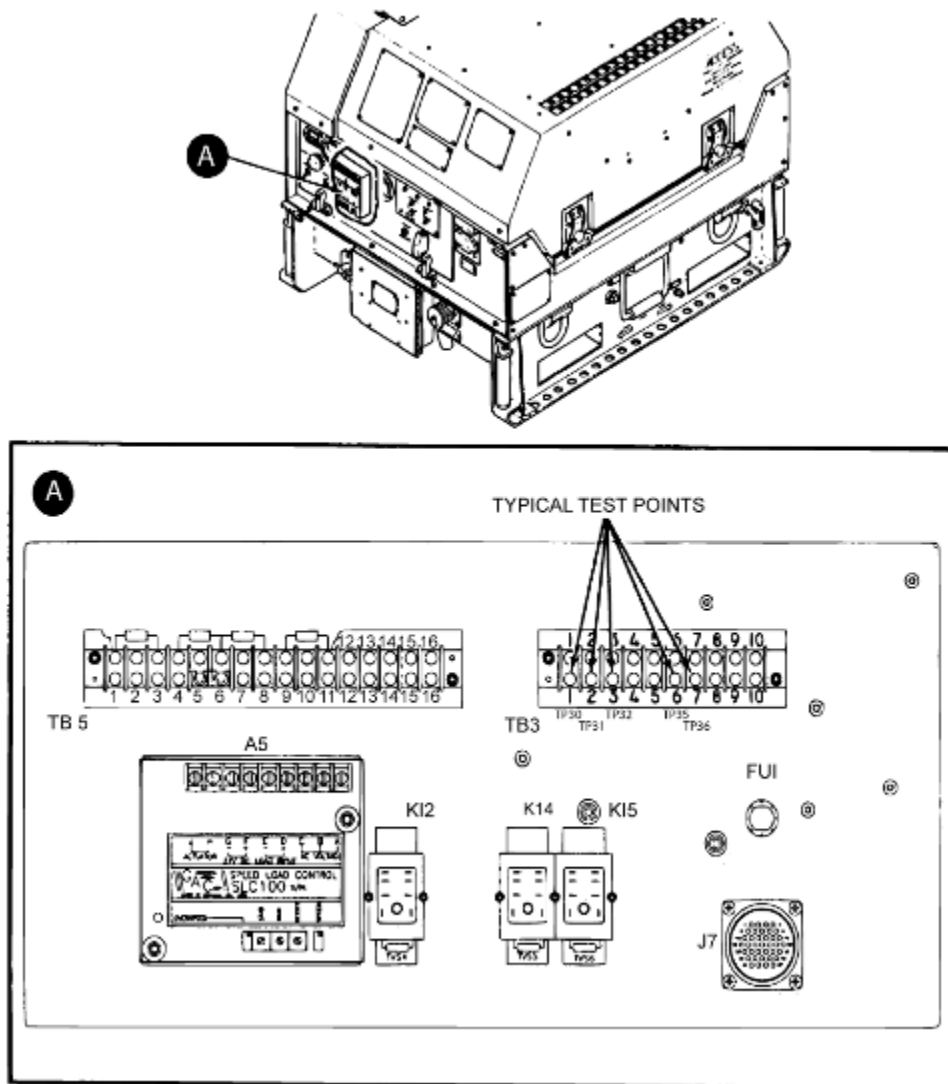


Figure 1. Troubleshooting.

SYMPTOM TROUBLESHOOTING PROCEDURES INDEX

Malfunction/Symptom

Troubleshooting Procedure

TROUBLESHOOTING

1. Engine fails to crank	Malfunction 1
2. Engine cranks but fails to start	Malfunction 2
3. Engine Cranks Slowly	Malfunction 3
4. Low Battery Voltage	Malfunction 4
5. Engine starts and stops	Malfunction 5
6. Engine fails to start in cold weather	Malfunction 6
7. Engine fails to stop when EMERGENCY STOP button is pressed	Malfunction 7
8. Engine starts, no generator voltage reading	Malfunction 8
9. Generator set fails to supply power to the load	Malfunction 9

SYMPTOM TROUBLESHOOTING PROCEDURES INDEX – CONTINUED

10. No reading on kilowatt (LOAD) meter (M2) when load is applied	Malfunction 10
11. While generator is running, no power at convenience receptacle	Malfunction 11
12. Generator set causes radio interference	Malfunction 12
13. Circuit interrupter fails to close	Malfunction 13
14. Circuit interrupter fails to remain closed when CIRCUIT INTERRUPTER switch is released	Malfunction 14
15. Auxiliary fuel system fails to energize when generator fuel tank is low on fuel	Malfunction 15
16. BATTLE SHORT indicator fails to illuminate when BATTLE SHORT switch in ON	Malfunction 16
17. Fan (B2) fails to operate at high temperature	Malfunction 17
18. Fan (B3) fails to operate at high temperature	Malfunction 18
19. Engine emits white smoke	Malfunction 19
20. Engine emits black smoke	Malfunction 20
21. Malfunction indicators fail to illuminate when PUSH TEST switch is pressed	Malfunction 21
22. ENGINE HIGH TEMP indicator illuminates	Malfunction 22
23. LOW OIL PRESSURE indicator illuminates	Malfunction 23
24. NO FUEL indicator illuminates	Malfunction 24
25. Engine fails to develop full power	Malfunction 25
26. Abnormal engine noise/excessive vibration	Malfunction 26
27. Generator fails to generate sufficient voltage/output fluctuates	Malfunction 27
28. Generator noisy when running	Malfunction 28

END OF WORK PACKAGE

FIELD MAINTENANCE

FIELD TROUBLESHOOTING PROCEDURES

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Multimeter (WP 0133, Table 2, Item 1)

References - cont'd

WP 0041
WP 0042
WP 0043
WP 0044
WP 0046
WP 0047
WP 0051
WP 0052
WP 0056
WP 0058
WP 0059
WP 0060
WP 0079

Personnel Required

Power Generation Equipment Repairer 91D (1)

References

WP 0004
WP 0018
WP 0019
WP 0020
WP 0022
WP 0024
WP 0025
WP 0027
WP 0028
WP 0035
WP 0036
WP 0037
WP 0038
WP 0039

Equipment Condition

Generator set shut down, cool, and properly grounded (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Drawings Required

Generator Set Electrical Schematic (FO-1)

TROUBLESHOOTING PROCEDURE(S)**Troubleshooting Procedures****SYMPTOM**

ENGINE FAILS TO CRANK

MALFUNCTION

Battery has loose connections, corrosion, or damaged cable.

CORRECTIVE ACTION

STEP 1. Clean battery terminals and tighten connections.

STEP 2. Replace damaged cables .

MALFUNCTION

Battery has no voltage.

TROUBLESHOOTING – CONTINUED**CORRECTIVE ACTION**

- STEP 1. Pull out EMERGENCY STOP button and push in DC Circuit Breaker.
- STEP 2. Place START/RUN/STOP switch in START position.
- STEP 3. Connect positive (+) probe of multimeter to terminal board TB3, test point TP30.
- STEP 4. Connect negative (-) probe to TB3, test point TP31.
- STEP 5. Reading should be 20 to 32 VDC.
 - a. If voltage is present, continue to next malfunction.
 - b. If voltage is not present, service battery (WP 0025). Replace, as required.

MALFUNCTION

Faulty circuit breaker (CB1).

CORRECTIVE ACTION

- STEP 1. Push Circuit Breaker (CB1) in.
- STEP 2. Check voltage from LOAD terminal on CB1 to TP31. Voltage should read 20-32 VDC.
 - a. If voltage is present, continue to next malfunction.
 - b. If voltage is not present, replace CB1.

MALFUNCTION

Faulty EMERGENCY STOP button.

CORRECTIVE ACTION

- STEP 1. Press in circuit breaker (CB1).
- STEP 2. Pull out EMERGENCY STOP button.
- STEP 3. Connect positive (+) probe of multimeter to S19-A2.
- STEP 4. Connect negative (-) probe to terminal board TB3, test point TP31.
- STEP 5. Multimeter should read 20 to 32 VDC.
 - a. If voltage is present, continue to next malfunction.
 - b. If voltage is not present, remove and replace EMERGENCY STOP button (WP 0039).

MALFUNCTION

Faulty START/RUN/STOP switch.

CORRECTIVE ACTION

- STEP 1. Pull out EMERGENCY STOP button.
- STEP 2. Connect positive (+) probe of multimeter to terminal board TB5, pin 11.

TROUBLESHOOTING – CONTINUED

- STEP 3. Connect positive (+) probe of **DELETE THIS LINE**.
- STEP 4. Connect negative (-) probe to TB3, test point TP31.
- STEP 5. Place START/RUN/STOP switch in START position.
- STEP 6. Reading should be 20 to 32 VDC.
- If voltage is present, continue to next malfunction.
 - If voltage is not present, remove and replace START/RUN/STOP switch (WP 0038).

MALFUNCTION

Faulty diode (CR1).

CORRECTIVE ACTION

- STEP 1. Connect positive (+) probe of multimeter to terminal board TB5, pin 9.
- STEP 2. Connect negative (-) probe to TB3, test point TP31.
- STEP 3. Place START/RUN/STOP switch in START position.
- STEP 4. Reading should be 20 to 32 VDC.
- If voltage is present, continue to next malfunction.
 - If voltage is not present, remove and replace diode (WP 0044).

MALFUNCTION

Faulty relay (K15).

CORRECTIVE ACTION

- STEP 1. Place START/RUN/STOP switch in STOP position.
- STEP 2. Remove relay K15 and ohm out pins 1 and 9.
- STEP 3. Check resistance between pins 1 and 9 at relay K15. Reading should be zero ohms at relay K15, pins 1 and 9.
- If zero ohms, continue to next malfunction.
 - If not zero ohms, remove and replace relay (WP 0043).

MALFUNCTION

Faulty Battle Short Switch, S7.

CORRECTIVE ACTION

- STEP 1. Verify Battle Short Switch, S7 is not in closed position.
- STEP 2. Check for continuity between pins 1 and 2 of S7. There should be zero ohms resistance.
- If continuity is present, continue to next malfunction.
 - If there is no continuity, replace S7.

TROUBLESHOOTING – CONTINUED**MALFUNCTION**

Faulty engine start contactor (K2).

CORRECTIVE ACTION

- STEP 1. Disconnect wires connected to X1 and X2 of K2 relay.
- STEP 2. Remove diodes from X1 and X2.
- STEP 3. Connect multimeter probes to terminals X1 and X2 of K2 relay.
- STEP 4. Resistance should be approximately 55 ohms.
 - a. If resistance is approximately 55 ohms, continue to next malfunction.
 - b. If multimeter indicates infinity or 0 ohms, replace K2 (WP 0027).

MALFUNCTION

Faulty engine solenoid (L4).

CORRECTIVE ACTION

- STEP 1. Connect positive (+) probe of multimeter to K2-A2.
- STEP 2. Connect negative (-) probe of multimeter to TP31.
- STEP 3. Continuity should be approximately 1.4 ohms.
 - a. If continuity is approximately 1.4 ohms, continue to next malfunction.
 - b. If continuity does not read 1.4 ohms, remove and replace engine starter motor in accordance with TM 9-2815-257-24.

SYMPTOM

ENGINE CRANKS BUT FAILS TO START

MALFUNCTION

Clogged fuel filter/water separator element

CORRECTIVE ACTION

- STEP 1. If clogged, remove and replace fuel filter/water separator element (WP 0060).

MALFUNCTION

Fuel pump assembly inoperable.

CORRECTIVE ACTION

- STEP 1. Place START/RUN/STOP switch in RUN position.
- STEP 2. Check that fuel pump assembly is operating (audible sound). See fuel pump test procedures (WP 0058 for primary fuel pump and WP 0059 for auxiliary fuel pump).

TROUBLESHOOTING – CONTINUED**MALFUNCTION**

Battery has no voltage.

CORRECTIVE ACTION

- STEP 1. Using multimeter verify voltage reads 20-32 VDC at Battery Terminals.
- a. If voltage is present, continue to next malfunction.
 - b. If voltage is not present, service battery (WP 0025). Replace, as required.

MALFUNCTION

Faulty diode (CR2).

CORRECTIVE ACTION

- STEP 1. Open control panel and connect positive (+) probe of multimeter to terminal board TB3, test point TP32.
- STEP 2. Connect negative (-) probe to TB3, test point TP31.
- STEP 3. Place START/RUN/STOP switch in RUN position.
- STEP 4. Multimeter should read 20 to 32 VDC.
- a. If voltage is present, continue to next malfunction.
 - b. If voltage is not present, remove and replace diode (WP 0044).

MALFUNCTION

Faulty fault lockout relay (K12).

CORRECTIVE ACTION

- STEP 1. Connect positive (+) probe of multimeter to A5-F.
- STEP 2. Connect negative (-) probe to terminal board TB3, test point TP31.
- STEP 3. Place START/RUN/STOP switch in START position.
- STEP 4. Multimeter should read 20 to 32 VDC.
- a. If voltage is present, continue to next malfunction.
 - b. If voltage is not present, remove and replace fault relay (WP 0043).

MALFUNCTION

Faulty governor control (A5).

CORRECTIVE ACTION

- STEP 1. Disconnect J10/P10 at actuator.
- STEP 2. Connect positive (+) probe of multimeter to A5-H.
- STEP 3. Connect negative (-) probe to A5-J.
- STEP 4. Place START/RUN/STOP switch in START position.

TROUBLESHOOTING – CONTINUED

STEP 5. Multimeter should read 20 to 32 VDC.

- a. If voltage is present, continue to next malfunction.
- b. If voltage is not present, remove and replace governor control module (A5) (WP 0018).

MALFUNCTION

Faulty governor actuator (A6).

CORRECTIVE ACTION

STEP 1. Visually inspect actuator to ensure that actuator plate (WP 0020, Figure 1, Item 19) is flush against magnet of actuator.

STEP 2. If not flush, adjust per WP 0020.

STEP 3. Unplug J10 and measure resistance of actuator.

STEP 4. Resistance should be a minimum 10 ohms.

- a. If resistance is correct, continue to next malfunction.
- b. If actuator coil is open or resistance is less than 10 ohms replace actuator (WP 0020).

MALFUNCTION

Proper Operation Not Verified

CORRECTIVE ACTION

STEP 1. If symptom still occurs, refer to TM 9-2815-257-24 troubleshooting procedures.

SYMPTOM

ENGINE CRANKS SLOWLY

MALFUNCTION

Proper Operation Not Verified

CORRECTIVE ACTION

STEP 1. Check fuel injection for proper timing.

- a. If not 36 VAC minimum, remove and replace PMA (WP 0079).
- b. If symptom still occurs, refer to TM 9-2815-257-24.

SYMPTOM

LOW BATTERY VOLTAGE

MALFUNCTION

Faulty test regulator fuse (FU1).

TROUBLESHOOTING – CONTINUED**CORRECTIVE ACTION**

- STEP 1. Inspect and test regulator fuse (FU1).
- If faulty, remove and replace defective fuse (WP 0044).
 - If not faulty, continue to the next malfunction.

MALFUNCTION

Faulty generator (G1).

CORRECTIVE ACTION

- STEP 1. Connect positive (+) probe of multimeter to FU1-2.
- STEP 2. Connect negative (-) probe to terminal board TB4-9.
- STEP 3. Start generator set.
- STEP 4. Reading should be 36 VAC minimum.
- If reading is a minimum of 36 VAC, continue to the next malfunction.
 - If reading is not 36 VAC minimum, refer to next higher level of maintenance for replacement of permanent magnet alternator (PMA) (WP 0079).

MALFUNCTION

Faulty battery charging regulator (A9).

CORRECTIVE ACTION

- STEP 1. Disconnect battery cable from negative (-) battery terminal.
- STEP 2. Manually start the set.
- STEP 3. Insert multimeter test probes into J6 connector. Locate red and black wires in back of J6. Reading should be a minimum 24 VDC.
- If reading is a minimum 24 VDC, continue to the next malfunction.
 - If not, remove and replace battery charging regulator (WP 0024). Refer trouble to next higher level of maintenance.

SYMPTOM

ENGINE STARTS AND STOPS

MALFUNCTION

Damaged or defective fuel lines.

CORRECTIVE ACTION

- STEP 1. Inspect fuel lines for obstructions, kinks, leaks, or clogging. Possible air in fuel system. Check for loose or damaged connections.
- If damaged or defective, remove and replace fuel lines or components as necessary. Tighten connections.

TROUBLESHOOTING – CONTINUED

- b. If not damaged or defective, continue to the next malfunction.

MALFUNCTION

Faulty fuel filter/water separator element.

CORRECTIVE ACTION

STEP 1. Check for clogged fuel filter/water separator element.

- a. If clogged, remove and replace fuel filter/water separator element (WP 0060).
- b. If not clogged, continue to the next malfunction.

MALFUNCTION

Engine valve not fitted properly.

CORRECTIVE ACTION

STEP 1. Using a feeler gauge check clearance of valves. Clearance should be 0.10 to 0.15 minimum.

SYMPTOM

ENGINE FAILS TO START IN COLD WEATHER

MALFUNCTION

Faulty air heater.

CORRECTIVE ACTION

STEP 1. Remove one wire from each heater and check for continuity of air heaters (H1) and (H2).

- a. If continuity is present, continue to next malfunction.
- b. If continuity is not present, remove and replace air heater in accordance with TM 9-2815-257-24.

MALFUNCTION

Faulty PREHEAT switch (S18).

CORRECTIVE ACTION

STEP 1. Connect positive (+) probe of multimeter to switch (S18-1).

STEP 2. Connect negative (-) probe to terminal board TB3, test point (TP31).

STEP 3. Place PREHEAT switch in ON position.

STEP 4. Reading should be 20 to 32 VDC.

- a. If voltage is present, continue to the next malfunction.
- b. If voltage is not present, remove and replace PREHEAT switch (WP 0038).

TROUBLESHOOTING – CONTINUED**MALFUNCTION**

Faulty engine preheat relay (K13).

CORRECTIVE ACTION

- STEP 1. Connect positive (+) probe of multimeter to relay K13-A2.
- STEP 2. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- STEP 3. Place PREHEAT switch in ON position.
- STEP 4. Reading should be 20 to 32 VDC.
 - a. If voltage is present, continue to the next malfunction.
 - b. If voltage is not present, remove and replace preheat relay (WP 0042).

MALFUNCTION

Faulty Preheater

CORRECTIVE ACTION

- STEP 1. Test preheater relays (K13) and preheater switch (S18) by performing Steps 2 and 3 below.
- STEP 2. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- STEP 3. Place PREHEAT switch in ON position.
- STEP 4. Reading should be 20 to 32 VDC.
 - a. If faulty, replace preheater in accordance with TM 9-2815-257-24.
 - b. If symptom still occurs, notify next higher level maintenance.

SYMPTOM

ENGINE FAILS TO STOP WHEN START/RUN/STOP SWITCH IS PLACED IN STOP POSITION OR EMERGENCY STOP BUTTON IS PRESSED

MALFUNCTION

Faulty EMERGENCY STOP button (S19)

CORRECTIVE ACTION**NOTE**

If engine fails to stop when EMERGENCY STOP button is pressed or if engine START/RUN/STOP switch is shut off, push actuator lever to OFF position and perform the troubleshooting steps in malfunction: ENGINE FAILS TO START IN COLD WEATHER (WP 0013).

- STEP 1. Pull out EMERGENCY STOP button.
- STEP 2. Connect positive (+) probe of multimeter to S19, terminal A2.
- STEP 3. Place PREHEAT switch in ON position.

TROUBLESHOOTING – CONTINUED

- STEP 4. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- STEP 5. Place START/RUN/STOP switch in RUN position. Voltage should read 20-32 VDC.
- STEP 6. Press EMERGENCY STOP button.
- STEP 7. Reading should go from 24 to 0 VDC.
 - a. If reading drops, continue to next malfunction.
 - b. If reading does not drop to 0 VDC, replace EMERGENCY STOP button (WP 0039).

MALFUNCTION

Faulty Governor Actuator

CORRECTIVE ACTION

- STEP 1. Perform ADJUST procedure of Governor Actuator Assembly Maintenance (WP 0020).
 - a. If generator set does not shut down properly, continue to Step 2.
 - b. If generator set shuts down properly, perform normal operating procedures (WP 0005) to ensure no faults remain.
- STEP 2. Perform TEST procedure of Governor Actuator Assembly Maintenance (WP 0020).
 - a. If actuator resistance is too low, or there is no continuity, replace actuator.
 - b. If not, continue to next troubleshooting step.
- STEP 3. Perform TEST procedure of Governor Control Module Maintenance (WP 0019).
 - a. If Governor Control Module does not pass test, replace as needed (WP 0019).
 - b. If it passes test, continue to next troubleshooting step.
- STEP 4. If engine still does not shut off, notify next higher level maintenance.

SYMPTOM

ENGINE STARTS, NO VOLTAGE READING

MALFUNCTION

Faulty Frequency Converter.

CORRECTIVE ACTION

- STEP 1. Check that Frequency Converter (A8) voltage reconnection cover is closed.
- STEP 2. Close and latch cover to activate Frequency Converter (A8).
- STEP 3. Measure voltage at Frequency Converter (A8) output terminal as follows:
 - a. Set voltage select switch to 120/240 V.
 - b. Start generator set.

TROUBLESHOOTING – CONTINUED

- c. Connect multimeter to terminals L1 and N.
 - d. Check voltage reading, which should be 120 VAC.
 - e. Connect multimeter to terminals L2 and N.
 - f. Check voltage reading, which should be 120 VAC.
 - g. Connect multimeter to terminals L1 and L2.
 - h. Check voltage reading, which should be 240 VAC if in 120/240 V connection configuration or 0 VAC if in 120 V connection configuration.
 - (1) If voltages are correct, perform Step 4. If voltages are not correct, continue to Step 6.
- STEP 4. Measure voltage at VOLTAGE meter.
- a. If voltage is present, remove and replace VOLTAGE meter (WP 0035).
 - b. If voltage is not present, perform next step.
- STEP 5. Check wiring harness: Check continuity between A8 terminal L1 and voltage meter terminal 1, wire #101L18.
- a. If continuity is not present, repair wiring harness.
 - b. If continuity is present, refer to next-higher level maintenance.
- STEP 6. Ensure connectors P15, P16, and P17 are properly installed on Frequency Converter (A8). Check for broken wires and loose crimps.
- STEP 7. Measure PMA output (Steps 1-4, WP 0022).
- a. If voltage is present, replace Frequency Converter (A8).
 - b. If voltage is not present, PMA is defective. Refer to next higher level maintenance.

SYMPTOM

GENERATOR SET FAILS TO SUPPLY POWER TO THE LOAD

MALFUNCTION

Faulty connections between terminals.

CORRECTIVE ACTION**NOTE**

Start generator set and perform corrective action steps below.

- STEP 1. Close AC Circuit Interrupter. Using a multimeter, check generator set output voltage at output terminals L1, L2, and N (WP 0004, Item 12, Figure 1).
- a. If voltage is present, check cables between load and generator set.
 - b. If voltage is not present, continue to next troubleshooting step.
- STEP 2. Check for proper output voltage readings at Frequency Converter (A8) terminals L1, L2, and N. Reading should be 120/240 VAC +/-6.
- a. If voltages are correct, continue to next troubleshooting step.

TROUBLESHOOTING – CONTINUED

- b. If voltages are incorrect, see malfunction 7, Engine Starts, No Voltage Reading.

STEP 3. Check load contactor relay (K1) as follows:

- a. Start generator set.
- b. Check for voltage between K1, Terminals A1 and B1 and ground. Voltage should be 120 VAC +/-6.
 - (1) If there is no voltage check wiring between A8 and K1.
- c. Close AC Circuit Interrupter.
- d. Check for voltage between K1, Terminals A2 and B2 and ground. Voltage should be 120 VAC +/-6.
 - (1) If there is voltage, check wires between K1, A2 and B2 and Output Terminals.
 - (2) If there is not voltage proceed to step 5.
- e. Measure voltage between K1, Terminal 2, wire 31B18 and ground, TP31. Voltage should be 24 VDC.
 - (1) If any voltage is not present, remove and replace relay K1 (WP 0027).

STEP 4. Check S5.

- a. Hold S5 in closed position and measure continuity between terminals 2 and 5 and terminals 5 and 4.
 - (1) If there is no continuity, replace switch.
- b. Hold S5 in open position and measure continuity between terminals 4 and 5. There should not be any continuity.
 - (1) If there is continuity, replace S5. If there is not continuity, replace K1.

SYMPTOM

NO READING ON KILOWATT (LOAD) METER (M2) WHEN LOAD IS APPLIED

MALFUNCTION

Faulty Kilowatt (Load) Meter (M2).

CORRECTIVE ACTION

STEP 1. Shut down generator (WP 0005).

STEP 2. Disconnect P17 from A8 and perform the following tests:

- a. Set multimeter to read resistance. Multimeter should read 100 ohms at LOAD meter terminals on back of meter.
 - (1) If reading is less than 100 ohms, remove and replace LOAD meter (WP 0036).
 - (2) If 100 ohms is present at LOAD meter, continue to next troubleshooting step.
- b. Check wiring between LOAD meter and P17.

TROUBLESHOOTING – CONTINUED

- (1) Remove and replace damaged wiring, as required.

SYMPTOM

WHILE GENERATOR IS RUNNING, NO POWER AT CONVENIENCE RECEPTACLE

MALFUNCTION

Faulty GFCI.

CORRECTIVE ACTION

- STEP 1. Turn off load.
- STEP 2. Check that CB# on back of GFCI is not tripped.
- If it is tripped, reset CB3 switch.
 - If not, continue to next troubleshooting step.
- STEP 3. Check Ground Fault Circuit Interrupter (GFCI).
- Start generator set and press RESET button on GFCI.
 - Measure voltage at convenience receptacle by placing positive probe of multimeter into smaller rectangular output socket of receptacle and negative probe of multimeter into larger rectangular output socket of receptacle. Voltage should be 120 VAC +/-6.

(1) If no voltage is present go to Step c.
 - Press TEST button. Voltage should drop to zero.

(1) If voltage is present, replace GFCI.
- STEP 4. Check GFCI CB3 at TB4 as follows:
- Start generator set.
 - Connect positive (+) probe of multimeter to terminal board TB4, pin 1.
 - Connect negative (-) probe to terminal board TB4, pin 3.
 - Multimeter should read 120±2 VAC.

(1) If voltage is present, remove and replace GFCI (WP 0046).

SYMPTOM

GENERATOR SET CAUSES RADIO INTERFERENCE

MALFUNCTION

Faulty EMI Filter.

CORRECTIVE ACTION

- STEP 1. Check for proper generator set grounding.
- STEP 2. Inspect EMI filter for signs of damage.
- Remove and replace EMI filter (WP 0047). After replacing EMI filter, if radio interference continues, replace Frequency Converter (A8) (WP 0028).

TROUBLESHOOTING – CONTINUED

- b. If symptom still occurs, refer to next higher level maintenance.

SYMPTOM

CIRCUIT INTERRUPTER FAILS TO CLOSE

MALFUNCTION

Faulty relay K8.

CORRECTIVE ACTION**NOTE**

K8 relay is inside frequency converter (A8). Do not open A8 to access. See FO-1, Sheet 1.

STEP 1. Check relay K8 (part of Frequency Converter (A8)) as follows:

- a. Start generator set.
- b. Place BATTLE SHORT switch in ON position. Listen for RPMs to rise in generator set. This indicates K8 relay is operating.
- c. Push CIRCUIT INTERRUPTER switch.
 - (1) If green, circuit interrupter is closed. Proceed to next malfunction.

NOTE

Before removing Frequency Converter (A8), perform next malfunction step, below, to determine if relay K12 is operating.

- (2) If CIRCUIT INTERRUPTER switch is not green, remove and replace Frequency Converter (A8) (WP 0028).

MALFUNCTION

Faulty relay K12.

CORRECTIVE ACTION

STEP 1. Check fault lockout relay (K12) as follows:

- a. Connect positive (+) probe of multimeter to K12-12.
- b. Connect negative (-) probe to K12-4.
- c. Place START/RUN/STOP switch in STOP position.
- d. Multimeter should read 0 ohms.
 - (1) If multimeter reads 0 ohms, continue to next malfunction.
 - (2) If multimeter does not read 0 ohms, remove and replace relay (WP 0043).

MALFUNCTION

Faulty CIRCUIT INTERRUPTER switch (S5).

TROUBLESHOOTING – CONTINUED**CORRECTIVE ACTION**

STEP 1. Check CIRCUIT INTERRUPTER switch (S5) as follows:

- a. Connect positive (+) probe of multimeter to S5-2.
- b. Connect negative (-) probe to S5-5.
- c. Place START/RUN/STOP switch in STOP position.
- d. Hold CIRCUIT INTERRUPTER switch in CLOSED position.
- e. Multimeter reading should be 0 ohms.
 - (1) If multimeter reads 0 ohms, continue to next malfunction.
 - (2) If multimeter does not read 0 ohms, remove and replace CIRCUIT INTERRUPTER switch (WP 0041).

MALFUNCTION

Faulty K1 or K15.

CORRECTIVE ACTION

STEP 1. Check coil resistance of K1 between K1 X1 and X2. Resistance should be approximately 55 ohms.

- a. If approximately 55 ohms, continue to next step.
- b. If infinity or 0 ohms, replace relay K1 (WP 0043).

STEP 2. Check relays (K1 and K15) as follows:

- a. Start generator set.
- b. Connect positive (+) probe of multimeter to S5-2.
- c. Connect negative (-) probe of multimeter to terminal board (TB3), test point (TP31).
- d. Hold CIRCUIT INTERRUPTER switch in CLOSED position.
- e. Multimeter reading should be 0 VDC.
 - (1) If voltage is 0 VDC, remove and replace relay K1 (WP 0027).
 - (2) If voltage is 20 to 32 VDC, remove and replace relay K15 (WP 0043).

SYMPTOM

CIRCUIT INTERRUPTER FAILS TO REMAIN CLOSED WHEN CIRCUIT INTERRUPTER SWITCH IS RELEASED

MALFUNCTION

Faulty CIRCUIT INTERRUPTER switch (S5).

CORRECTIVE ACTION

STEP 1. Check CIRCUIT INTERRUPTER switch (S5) as follows:

- a. Connect positive (+) probe of multimeter to S5-2.

TROUBLESHOOTING – CONTINUED

- b. Connect negative (-) probe to S5-5.
- c. Place START/RUN/STOP switch in STOP position.
- d. Hold CIRCUIT INTERRUPTER switch in CLOSED position.
- e. Multimeter reading should be 0 ohms.
 - (1) If reading is 0 ohms, continue to next malfunction.
 - (2) If reading is not 0 ohms, remove and replace CIRCUIT INTERRUPTER switch (WP 0041).

MALFUNCTION

Faulty relay (K1).

CORRECTIVE ACTION

STEP 1. Check relays (K1) as follows:

- a. Start generator set.
- b. Connect positive (+) probe of multimeter to S5-2.
- c. Connect negative (-) probe of multimeter to terminal board (TB3), test point (TP31).
- d. Hold CIRCUIT INTERRUPTER switch in CLOSED position.
- e. Multimeter reading should be 0 ohms.
 - (1) If voltage is 0 VDC, remove and replace relay K1 (WP 0027) microswitch on old style relay, and complete relay on new style relay (WP 0043).

SYMPTOM

AUXILIARY FUEL SYSTEM FAILS TO ENERGIZE WHEN GENERATOR FUEL TANK IS LOW ON FUEL

MALFUNCTION

Faulty AUX FUEL switch (S17).

CORRECTIVE ACTION

STEP 1. Check AUX FUEL switch (S17) as follows:

- a. Connect positive (+) probe of multimeter to terminal board (TB5), pin 1.
- b. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- c. Place START/RUN/STOP switch in RUN position.
- d. Place AUX FUEL switch in ON position.
- e. Multimeter should read 20 to 32 VDC.
 - (1) If 20 to 32 VDC is present, continue to next malfunction.
 - (2) If 20 to 32 VDC is not present, remove and replace AUX FUEL switch (WP 0038).

TROUBLESHOOTING – CONTINUED**MALFUNCTION**

Faulty diode (CR3).

CORRECTIVE ACTION

STEP 1. Check diode (CR3) as follows:

- a. Connect positive (+) probe of multimeter to terminal board (TB5), pin 3.
- b. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- c. Place START/RUN/STOP switch in RUN position.
- d. Place AUX FUEL switch in ON position.
- e. Multimeter should read 20 to 32 VDC.
 - (1) If 20 to 32 VDC is present, continue to next malfunction.
 - (2) If 20 to 32 VDC is not present, remove and replace diode (WP 0044).

MALFUNCTION

Faulty fuel level switch (FL2).

CORRECTIVE ACTION

STEP 1. Check fuel level switch (FL2) as follows:

- a. Connect positive (+) probe of multimeter to TB 5-14a.
- b. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- c. Place START/RUN/STOP switch in RUN position.
- d. Place AUX FUEL switch in ON position.
- e. Multimeter should read 20 to 32 VDC.

NOTE

Fuel level must actually be low to obtain 20 to 32 VDC.

- (1) If 20 to 32 VDC is present, continue to next malfunction.
- (2) If fuel level is low and 20 to 32 VDC is not present, remove and replace fuel level switch (WP 0056).

MALFUNCTION

Faulty auxiliary fuel transfer relay (K14).

CORRECTIVE ACTION

STEP 1. Check auxiliary fuel transfer relay (K14) as follows:

- a. Connect positive (+) probe of multimeter to fuel transfer relay (K14-9).
- b. Connect negative (-) probe to terminal board (TB3), test point (TP31).

TROUBLESHOOTING – CONTINUED

- c. Place START/RUN/STOP switch in RUN position.
- d. Place AUX FUEL switch in ON position.
- e. Multimeter should read 20 to 32 VDC.

NOTE

Fuel level must actually be low to obtain 20 to 32 VDC.

- (1) If 20 to 32 VDC is present, continue to next malfunction.
- (2) If 20 to 32 VDC is not present, remove and replace relay (WP 0043).

MALFUNCTION

Faulty auxiliary fuel pump.

CORRECTIVE ACTION

STEP 1. Test auxiliary fuel pump as follows:

- a. Disconnect J12 from P12 at primary fuel pump.
- b. Disconnect J9 from P9 at auxiliary fuel pump.
- c. Feed P12 behind engine and connect J9 to P12 at auxiliary fuel pump.
- d. Place START/RUN/STOP switch in RUN position.
- e. Listen for click sound at fuel pump.
 - (1) If no click sound, remove and replace auxiliary fuel pump (WP 0059).
 - (2) If symptom still occurs, notify next higher level of maintenance.

SYMPTOM

BATTLE SHORT INDICATOR FAILS TO ILLUMINATE WHEN BATTLE SHORT SWITCH IS ON

MALFUNCTION

Proper operation not verified.

CORRECTIVE ACTION

STEP 1. Press FAULT RESET/PUSH TEST.

- a. If indicator does not illuminate, replace fault indicator module (WP 0037).
- b. If indicator illuminates, continue to next troubleshooting step.

STEP 2. Check BATTLE SHORT switch (S7) as follows:

- a. Connect positive (+) probe of multimeter to switch (S7-3) (wire #12A20).
- b. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- c. Place START/RUN/STOP switch in RUN position.
- d. Place S7 in ON position.

TROUBLESHOOTING – CONTINUED

- e. Reading should be zero VDC.
 - (1) If not zero VDC, remove and replace BATTLE SHORT switch (WP 0038).

SYMPTOM

FAN (B2) FAILS TO OPERATE AT HIGH TEMPERATURE

MALFUNCTION

Faulty Battle Short Switch (S7).

CORRECTIVE ACTION

STEP 1. Check temperature switch (S20) as follows (60 Hz model, MEP-831A):

- a. Connect positive (+) probe of multimeter to switch at S20-2.

NOTE

Terminal S20-2 connects to fan.

- b. Connect negative (-) probe to terminal board (TB3), test point (TP35).
- c. Start generator set. Internal generator set temperature must be above 85 °F.
- d. Reading should be 120±6 VAC.
 - (1) If voltage is present, replace fan B2 (WP 0051).
 - (2) If voltage is not present, remove and replace temperature switch (WP 0052).

STEP 2. Check temperature switch (S20) as follows (400 Hz model, MEP-832A):

- a. Connect positive (+) probe of multimeter to switch at S20-2.

NOTE

Terminal S20-2 connects to fan.

- b. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- c. Place START/RUN/ STOP switch in RUN position. Internal generator set temperature must be above 85 °F.
- d. Reading should be 20 to 32 VDC.
 - (1) If voltage is present, replace fan B2 (WP 0051).
 - (2) If voltage is not present, remove and replace temperature switch (WP 0052).

SYMPTOM

FAN (B3) FAILS TO OPERATE AT HIGH TEMPERATURE

MALFUNCTION

Faulty Temperature Switch (S21).

TROUBLESHOOTING – CONTINUED**CORRECTIVE ACTION**

STEP 1. Check temperature switch (S21) as follows (60 Hz model, MEP-831A):

- a. Connect positive (+) probe of multimeter to switch at S21-2.

NOTE

Terminal S21-2 connects to fan.

- b. Connect negative (-) probe to terminal board (TB3), test point (TP35).
- c. Start generator set. Internal generator set temperature must be above 110 °F.
- d. Reading should be 120±6 VAC.
 - (1) If voltage is not present, remove and replace temperature switch (WP 0052).
 - (2) If voltage is present, replace fan B3 (WP 0051).

STEP 2. Check temperature switch (S21) as follows (400 Hz model, MEP-832A):

- a. Connect positive (+) probe of multimeter to switch S21-2.

NOTE

Terminal S21-2 connects to fan.

- b. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- c. Place START/RUN/STOP switch in RUN position. Internal generator set temperature must be above 110 °F.
- d. Reading should be 20 to 32 VDC.
 - (1) If voltage is not present, remove and replace temperature switch (WP 0052).
 - (2) If voltage is present, replace fan B2 (WP 0051).

SYMPTOM

ENGINE EMITS WHITE SMOKE

MALFUNCTION

Faulty Engine.

CORRECTIVE ACTION

STEP 1. Check for clogged fuel filter/water separator element. If clogged, remove and replace fuel filter/water separator element (WP 0060).

STEP 2. Refer to TM 9-2815-257-24.

STEP 3. Adjust engine valve clearance, in accordance with TM 9-2815-257-24

STEP 4. Check fuel injection timing, in accordance with TM 9-2815-257-24

SYMPTOM

ENGINE EMITS BLACK SMOKE

TROUBLESHOOTING – CONTINUED**MALFUNCTION**

Faulty Engine Exhaust. (Black smoke emitted from exhaust pipe.)

CORRECTIVE ACTION

STEP 1. Adjust engine valve clearance, in accordance with TM 9-2815-257-24

STEP 2. Check fuel injection timing, in accordance with TM 9-2815-257-24

SYMPTOM

MALFUNCTION INDICATORS FAIL TO ILLUMINATE WHEN PUSH TEST SWITCH IS PRESSED

MALFUNCTION

Faulty fault indicator module.

CORRECTIVE ACTION

STEP 1. Check for 20 to 32 DC voltage at fault indicator module A2 at pin 1 on J4 and TB3 TP31.

- a. If voltage is not present, remove and replace fault indicator module (WP 0037).
- b. If symptom still occurs, refer to next higher level maintenance.

SYMPTOM

ENGINE HIGH TEMP INDICATOR ILLUMINATES

MALFUNCTION

Engine Overheating.

CORRECTIVE ACTION

STEP 1. Check engine cylinder fins for accumulated dirt and grime. Check and remove blockages as needed. Clean dirty fins in accordance with TM 9-2815-257-24.

STEP 2. Check for operation of fans and troubleshoot as needed. (WP 0051)

STEP 3. Check valves and adjust as required as per TM 9-2815-257-24.

SYMPTOM

LOW OIL PRESSURE INDICATOR ILLUMINATES

MALFUNCTION

Engine has low oil pressure.

CORRECTIVE ACTION

STEP 1. Check for engine oil level and leaks.

TROUBLESHOOTING – CONTINUED

STEP 2. Check engine oil pressure switch (OP) as follows:

- a. Disconnect two wires from oil pressure switch.
- b. Check for continuity between switch terminals.
- c. With generator set shut down, switch should be closed.
- d. With generator set running, switch should be open.
- e. Check to see if switch operates properly.
 - (1) If switch operates improperly, remove and replace engine oil pressure switch (OP) in accordance with TM 9-2815-257-24.
 - (2) If switch operates properly, continue to next troubleshooting step.

STEP 3. Check to see if engine oil filter is clogged or defective.

STEP 4. Remove and replace engine oil filter in accordance with TM 9-2815-257-24.

SYMPTOM

NO FUEL INDICATOR ILLUMINATES

MALFUNCTION

Faulty Fuel Level Switch (FL1).

CORRECTIVE ACTION

STEP 1. Check to verify that fuel is in tank. Service fuel as required.

STEP 2. Check fuel level switch (FL1) as follows:

- a. Connect positive (+) probe of multimeter to P4-10.
- b. Connect negative (-) probe to terminal board (TB3), test point (TP31).
- c. Place START/RUN/STOP switch in RUN position.
- d. Multimeter reading should be 20 to 32 VDC.
 - (1) If voltage is not present, remove and replace fuel level switch (WP 0056).
 - (2) If symptom still occurs, notify next higher level maintenance.

SYMPTOM

ENGINE FAILS TO DEVELOP FULL POWER

MALFUNCTION

Engine not providing full power.

CORRECTIVE ACTION

STEP 1. Test fuel injector nozzle in accordance with TM 9-2815-257-24.

- a. If fuel injector nozzle is bad, replace fuel injector nozzle.
- b. If fuel injector nozzle is good, continue to Step 2.

TROUBLESHOOTING – CONTINUED

- STEP 2. Test governor control module (A5). (WP 0019)
- If governor control module is bad, replace GCM. (WP 0019)
 - If governor control module is good, continue to Step 3.
- STEP 3. Test governor actuator (A6). (WP 0020)
- If governor actuator (A6) is bad, replace governor actuator (A6). (WP 0020)
 - If governor actuator (A6) is good, notify next level maintenance.

SYMPTOM**ABNORMAL ENGINE NOISE/EXCESSIVE VIBRATION****MALFUNCTION**

Engine emits excessive noise/vibration.

CORRECTIVE ACTION

- STEP 1. Check engine valve adjustment and adjust valves as required. See TM 9-2815-257-24.
- STEP 2. Check tightness of muffler nuts on exhaust manifold and bracket mounting bolts under muffler.
- STEP 3. Torque muffler nuts to 216 in•lb (18 ft•lb) and mounting bolts to 108 in•lb (9 ft•lb).
- STEP 4. Check for water in fuel. Drain fuel filter/water separator and clean fuel tank.
- STEP 5. Visually check for split or cracked rubber on engine mounts. Repair as required in accordance with TM 9-2815-257-24.

SYMPTOM**GENERATOR FAILS TO GENERATE SUFFICIENT VOLTAGE/ OUTPUT FLUCTUATES****MALFUNCTION**

Generator not providing sufficient output/fluxuates.

CORRECTIVE ACTION

- STEP 1. Test governor control module (A5). (WP 0019)
- If governor control module (A5) is bad, replace as required. (WP 0019)
 - If governor control module (A5) is good, continue to Step 2.
- STEP 2. Test governor actuator (A6). (WP 0020)
- If governor actuator (A6) is bad, replace as required. (WP 0020)
 - If governor actuator (A6) is good, continue to Step 3
- STEP 3. Check for output of Permanent Magnet Alternator (PMA).
- If the PMA is bad, repair/replace PMA as required.
 - If the PMA is good, notify next level maintenance.

TROUBLESHOOTING – CONTINUED**SYMPTOM**

GENERATOR NOISY WHEN RUNNING

MALFUNCTION

Generator emits excessive noise.

CORRECTIVE ACTION

- STEP 1. Check engine valve adjustment. Adjust valves as required. See TM 9-2815-257-24.
- STEP 2. Check tightness of muffler nuts on exhaust manifold and bracket mounting bolts under muffler.
- STEP 3. Torque muffler nuts to 216 in•lb (18 ft•lb) and mounting bolts to 108 in•lb (9 ft•lb).
- STEP 4. Check for loose nuts, bolts, brackets, and hardware. Tighten as required

END OF WORK PACKAGE

CHAPTER 6

FIELD MAINTENANCE INSTRUCTIONS

FIELD MAINTENANCE

SERVICE UPON RECEIPT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0004
WP 0131
WP 0133

Materials/Parts

Grounding Rod (WP 0120, Figure 32)

Equipment Condition

Generator set shut down, and properly grounded (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)
Engine cool

Personnel Required

Power Generation Equipment Repairer 91D (1)

GENERAL**Processing Unpacked Equipment**

1. Inspect equipment for damage incurred during shipment. If equipment has been damaged, report damage on SF 368 (WP 0131, References), Product Quality Deficiency Report (PQDR).
2. Check equipment against the packing slip to see if shipment is complete. Report all discrepancies in accordance with instructions of DA PAM 750-8 (WP 0131, References).
3. Check to see whether the equipment has been modified.

END OF TASK**INSTALLATION****WARNING**

- Operation and maintenance of the 3 kW generator sets contains many possibilities for injury or death to personnel. Be sure to be familiar with general first aid procedures as referenced in FM 4-25.11, First Aid (WP 0131, References). Failure to comply may cause injury or death to personnel.
- To prevent injury to personnel and damage to equipment, use caution when lifting or moving generator set. Six people are required for manual lifting. Use lifting rings for lifting device and forklift openings for forklift only. Do not lift generator set over personnel. Failure to observe this warning could result in severe personal injury or death.
- If damaged or defective components are discovered, repair must be performed before operations can begin. Perform required repairs and adjustments before proceeding. Do not operate the generator set with damaged components. Personal injury can occur if damaged parts are left unfixed. Failure to observe this warning could result in severe personal injury or death.

INSTALLATION – CONTINUED

NOTE

Prior to placing generator set into service, operating personnel must be familiar with the location and function of all switches, controls, and indicators. See WP 0004, Operator Controls and Indicators and Figure 1 before continuing with the following procedures.

1. Using a 500-pound capacity hoist or similar lifting device (WP 0133, Table 2, Item 5), remove generator set from its shipping container. Place on a suitable work surface.
2. Remove packing material from generator set.
3. Inspect generator set for damage incurred during shipping. If equipment has been damaged, report damage in accordance with DA PAM 750-8 (WP 0131, References).
4. Check generator set against packing slip to ensure shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 750-8 (WP 0131, References).
5. Check all tags and forms accompanying generator set for special instructions. Do not remove any forms or tags until generator set is installed and ready for operation. When generator set is installed, remove forms and tags and forward to Quality Control (QC) section office.

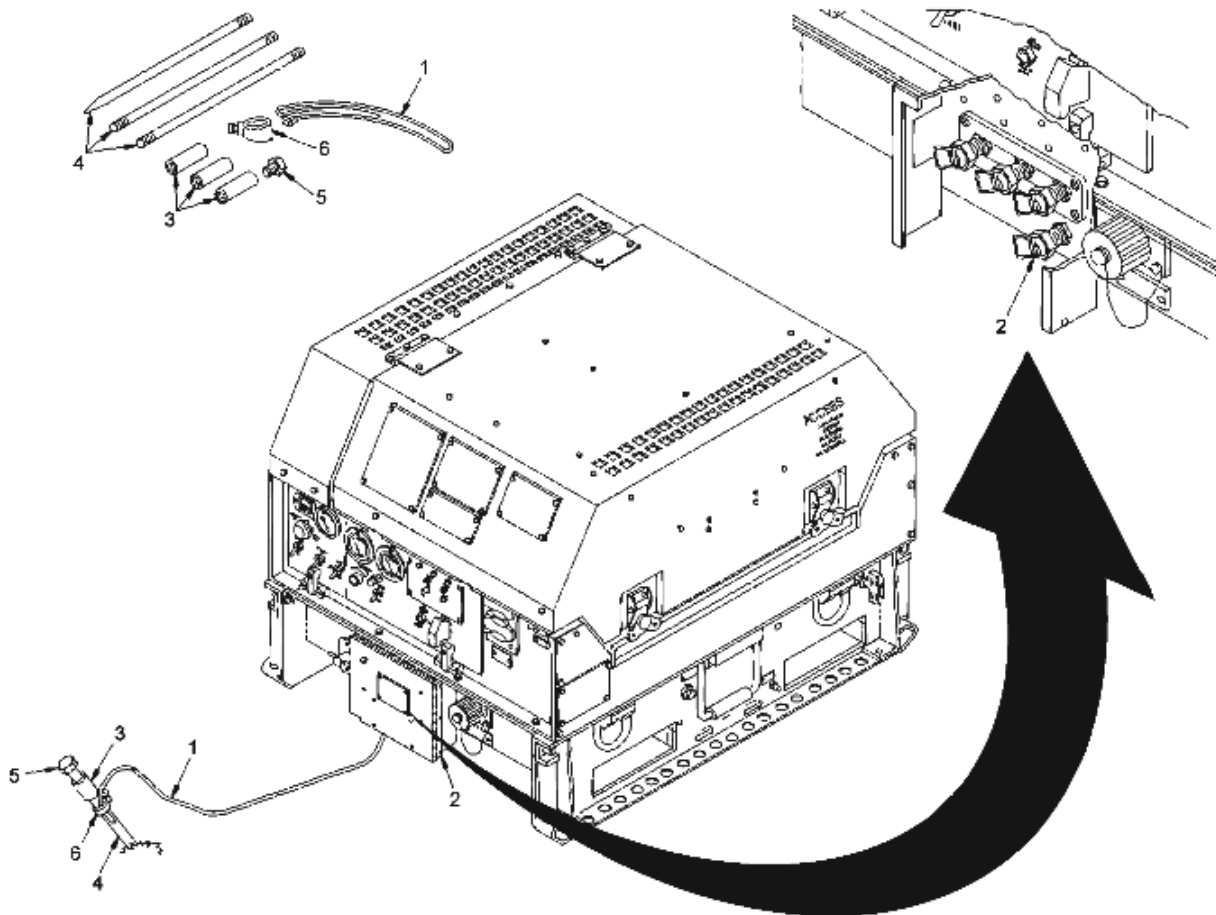


Figure 1. Ground Rod and Cable Installation.

INSTALLATION – CONTINUED**GROUNDING THE GENERATOR SET****WARNING**

- High voltage is produced when generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Do not ground yourself in standing water. Never attempt to connect or disconnect load cables while the generator set is running. Failure to comply may cause injury or death to personnel.
- Metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry and do not wear loose clothing when working on equipment. Failure to comply may cause injury or death to personnel.

1. Connect ground rod and cable as follows:
 - a. Open output load terminal cover. Insert ground cable (Figure 1, Item 1) through slot on generator set GND output terminal (Figure 1, Item 2). Using load terminal wrench, tighten terminal nut.
 - b. Connect coupling (Figure 1, Item 3) to ground rod (Figure 1, Item 4), and screw driving stud (Figure 1, Item 5) into coupling. Make sure driving stud seats on ground rod.

NOTE

For ease of removal, install ground rod at a 45° angle.

- c. Drive ground rod (Figure 1, Item 4) into ground on a 45° angle until coupling (Figure 1, Item 3) is just above ground surface.
- d. Remove driving stud (Figure 1, Item 5) and install another section of ground rod (Figure 1, Item 4). Install another coupling (Figure 1, Item 3) and driving stud (Figure 1, Item 5).
- e. Drive ground rod (Figure 1, Item 4) down until new coupling (Figure 1, Item 3) is just above ground surface.
- f. Repeat Steps d and e, above, until ground rod has been driven 8 feet or deeper, providing an effective ground.
- g. Connect clamp (Figure 1, Item 6) and ground cable (Figure 1, Item 1) to ground rod (Figure 1, Item 4). Tighten clamp screw securely to prevent movement.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE

FIELD PMCS INTRODUCTION

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Multimeter (WP 0133, Table 2, Item 1)

Personnel Required

Power Generation Equipment Repairer 91D (1)

References

WP 0016
WP 0131

References - cont'd

WP 0136, Table 1, Item 3

Equipment Condition

Generator set shut down, cool, and properly grounded (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Drawings Required

Generator Set Electrical Schematic (FO-1)

INTRODUCTION TO FIELD PMCS TABLE

Preventive Maintenance Checks and Services (PMCS) means systematic caring for, inspecting, and servicing of equipment to keep it in good condition and to prevent breakdowns. As generator set operator, your mission is to ensure that the generator set is ready for operation at all times. It must be inspected so that defects can be discovered and corrected before they result in damage or failure.

1. Be sure to perform your PMCS as indicated. Always perform your PMCS in the same order, so it gets to be a habit. Once you have had some practice, you will quickly spot anything wrong.
2. Perform your BEFORE PMCS before you operate the generator set. Pay attention to WARNINGS, CAUTIONS, and NOTES.
3. Perform your DURING PMCS while you operate the generator set. Monitor the generator set and its related components while it is actually being operated. Pay attention to WARNINGS, CAUTIONS, and NOTES.
4. Perform your AFTER PMCS right after operating the generator set. Pay attention to WARNINGS, CAUTIONS, and NOTES.
5. Perform your WEEKLY PMCS once a week.
6. If your equipment does not perform as required, see Chapter 3, Operator Troubleshooting Procedures, for possible problems. Use DA Form 2404 or DD Form 5988E, Equipment Inspection and Maintenance Worksheet (WP 0131), to record any faults you discover before, during, or after operation.
7. Be prepared to assist field maintenance when they lubricate the generator set. Perform any other services when required by field maintenance.

Always observe the WARNINGS and CAUTIONS appearing in your PMCS table. WARNINGS and CAUTIONS appear before applicable procedures. You must observe these WARNINGS and CAUTIONS to prevent serious injury to yourself and others or to prevent your equipment from being damaged.

Explanation of Table Entries

Your Preventive Maintenance Checks and Services (PMCS), WP 0016, Table 1, lists inspections and care required to keep your generator set in good operating condition. It is set up so you can make your BEFORE OPERATION checks as you walk around the generator set.

INTRODUCTION TO FIELD PMCS TABLE – CONTINUED

Item Number Column. The Item No. column lists each check or service in chronological order.

Interval Column. This column tells you when you must do the procedure in the Procedure column.

BEFORE (B) - Checks and services performed prior to the equipment leaving its containment area or performing its intended mission.

DURING (D) - Checks begin when the equipment is being used in its intended mission.

AFTER (A) - Checks and services begin when the equipment is taken out of its mission mode or returned to its containment area.

WEEKLY (W) - Check and clean air filter weekly.

MONTHLY (M) - Checks and services to be performed on a monthly basis.

SEMIANNUALLY (S) - Checks and services to be performed on a semiannual basis.

Item to be Checked or Serviced Column. The Item to be Checked or Serviced column directs maintenance personnel to the general area on the generator set where the check or service is to be performed.

Procedure Column. The Procedure column tells you how to do required checks and services. Tolerances, adjustment limits, and instrument readings are included as applicable. When replacement or repair of a component is required, the procedures column will direct you to the appropriate task.

Equipment Not Ready/Available If Column. The Equipment Not Ready/Available If column tells you when your generator set is not operational and why the generator set cannot be used.

If the generator set does not perform as required, see Chapter 3, Operator Troubleshooting Procedures.

If anything looks wrong and you cannot fix it, write it on your DA Form 2404 or DD Form 5988E (WP 0131).

IMMEDIATELY report it to your supervisor.

When you perform PMCS, always keep a rag or two handy. Following are checks common to the entire generator set:

1. Keep It Clean. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use approved cleaning solvents (see WP 0136) on all metal surfaces. Use soap and water when you clean rubber or plastic material.
2. Rust and Corrosion. Check components for rust and corrosion. If any bare metal or corrosion exists, clean and apply a thin coat of oil. Report it to your supervisor.
3. Bolts, Nuts, and Screws. Check bolts, nuts, and screws for obvious looseness or to see if they are missing, bent, or broken. You cannot inspect them all with a tool, but look for chipped paint, bare metal, or rust around bolt heads. If you find a bolt, nut, or screw you think is loose, tighten it or report it to your supervisor.
4. Welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to your supervisor.
5. Electric Wires and Connectors. Look for cracked, frayed, or broken insulation. Look for bare wires, and loose or broken connectors. Tighten loose connectors. Report any damaged wires to your supervisor.
6. Hoses and Fluid Lines. Look for wear, damage, and leaks, and make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector can also mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to your supervisor.

When you check for "operating condition," you look at the component to see if it is serviceable.

CLEANING AGENTS

INTRODUCTION TO FIELD PMCS TABLE – CONTINUED**WARNING**

Compressed air is dangerous and could cause serious bodily harm, if protective means or methods are not observed to prevent a chip or particle (of whatever size) from being blown into the eyes or to prevent unbroken skin of the operator or other personnel. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 pounds per square inch gauge (psig). Use it only with effective chip-guarding and personnel protective equipment (industrial safety glasses and full face shield). DO NOT use compressed air to dry parts when solvent cleaners have been used. Failure to observe this warning could result in severe personal injury.

WARNING

Do not use TRICHLOROTRIFLUOROETHANE, TRICHLOROETHANE, and similar chemical solvents for ordinary cleaning of equipment. These substances threaten public health and the environment by destroying ozone in the Earth's upper atmosphere. Use suitable non-hazardous cleaning materials (see WP 0136) such as a clean cloth, water, and mild detergent or an approved substitute solvent, such as isopropyl alcohol. Failure to observe this warning could result in personal injury.

WARNING

Handle solvents as combustible liquids. Do not use near heat, sparks, or flame. Use solvents in well-ventilated areas only. Avoid prolonged breathing of vapor. Avoid bodily contact. Use chemical (solvent-resistant) gloves and chemical splash goggles when using solvent materials. Solvents may be reactive with acids and oxidizers; do not mix or cross-apply with other cleaners or chemicals. An organic vapor respirator with dust and mist filter is recommended when solvent is applied as a spray. Keep containers closed between applications. Provide mechanical ventilation if used in confined spaces. Store cleaning materials in a well-ventilated area away from food or drink. To avoid the possibility of spontaneous combustion, place solvent-saturated waste rags in a sealed metal container after use. Coordinate the use of this material with your supporting Industrial Hygiene and Safety Offices. Ensure you read and understand the Material Safety Data Sheet (MSDS) for the solvent before use. Failure to observe this warning could result in severe personal injury or death.

CAUTION

When cleaning inside generator set, engine must be COLD (same temperature as outside air). DO NOT point water stream directly at any electrical connection. DO NOT use high-pressure water supply system. Damage to engine, electrical system, and other components may result.

NOTE

Use only those authorized cleaning solvents or agents listed in WP 0136, Expendable and Durable Items List.

POWER WASHING**NOTE**

After power washing generator set, allow it to dry out thoroughly. DO NOT START GENERATOR SET UNLESS IT HAS COMPLETELY DRIED AFTER WASHING.

- a. When using a power washer to clean the exterior generator set enclosure, always cover all air ducts and exhaust ports, using waterproof material to prevent damage to components. Cover control box, output panel components, and Frequency Converter (A8). Make sure end of power washing wand is no closer

INTRODUCTION TO FIELD PMCS TABLE – CONTINUED

than three feet from generator set. Failure to follow these directions may result in damage to generator set. Use water pressure and volume similar to a standard household water supply (50 psi maximum, 3 gallons per minute). After cleaning, allow generator set to air dry. Do not use compressed air to dry unit. Do not run engine to decrease drying time.

- b. Remove all waterproof material from ducts and other components before starting generator set.

NOTE

Keep cleaning solvents, gasoline, and lubricants away from rubber or soft plastic parts. They will deteriorate material.

- c. When cleaning grease buildup or rusty places, use an approved cleaning solvent (see WP 0136). Then apply a thin coat of light oil to affected area.

LEAKAGE DEFINITIONS FOR OPERATOR PMCS

You need to know how fluid leakage affects the generator set. Following are types/classes of leakage an operator needs to know to be able to determine the status of the generator set. Learn these leakage definitions. Remember, when in doubt, notify your supervisor.

WARNING

Class III oil leaks should be reported IMMEDIATELY to your supervisor. Fuel leaks of any kind require immediate system shutdown. Failure to observe this warning could result in severe personal injury or death.

CAUTION

Equipment operation is allowable with Class I or Class II oil leakage. Consideration must be given to fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor. When operating with Class I or II oil leaks, continue to check fluid levels as required in your PMCS.

Table 1. Leakage Definitions.

- | | |
|----------------|---|
| (1) Class I. | Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops. |
| (2) Class II. | Leakage of fluid great enough to form drops, but not enough to cause drops to drip from the item being checked/inspected. |
| (3) Class III. | Leakage of fluid great enough to form drops that fall from the item being checked/inspected. |

END OF WORK PACKAGE

FIELD MAINTENANCE
FIELD PMCS, INCLUDING LUBRICATION INSTRUCTIONS

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
 Multimeter (WP 0133, Table 2, Item 1)

References - cont'd

WP 0060
 WP 0063
 WP 0131

Materials/Parts

Grounding Rod (WP 0120, Figure 32)

Equipment Condition

Generator set shut down, cool, and properly grounded (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

References

WP 0011
 WP 0025

Drawings Required

Generator Set Electrical Schematic (FO-1)

Table 1. Field Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	100 Hours/ Semian- nually for L70AE- DEGFR	Engine lubricat- ing oil system	CAUTION If an engine has a top-fill configuration, never fill or add oil at that location. The engine could be severely damaged if over-filled. Always check the oil level at the bottom fill location to ensure proper oil level. NOTE Engine lubrication procedure is dependent on engine model. Reference item no. 4 for sets with L70N6EZ0T9EAFD engines. Change oil and filter after 20 hours of engine operation. Follow 100-hour intervals thereafter, unless in dusty and sandy conditions.	

Table 1. Field Preventive Maintenance Checks and Services. – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			See Lubrication Instructions below.	Engine oil has not been changed or filter has not been cleaned.
2	100 hours/ Weekly	Engine air filter	1. Open main access cover to gain access to engine air filter case. 2. Remove air filter (WP 0011, Air Filter). 3. Inspect air filter for dirt, clogging, or obstruction. Replace as required. Check air filter rubber gasket to ensure it is secure. 4. Replace air filter (WP 0011, Air Filter). Replace cover on housing, using wing nut and washer. 5. Close main access cover and lock, using latches.	Air filter is clogged, dirty, or damaged.
3	100 Hours/ Monthly	Battery electrolyte level	Check battery electrolyte and gravity level (wet cell battery only). Service as required (WP 0025).	Battery electrolyte level is low.
4	200 Hours/ Semian- nually for L70N6EZ0T 9AE	Engine lubricating oil system	CAUTION If an engine has a top-fill configuration, never fill or add oil at that location. The engine could be severely damaged if over-filled. Always check the oil level at the bottom fill location to ensure proper oil level. NOTE Engine lubrication procedure is dependent on engine model. Reference item no. 1 for sets with L70AE-DEGFR engines. Change oil and filter after 50 hours of engine operation. Follow 200-hour intervals thereafter, unless in dusty and sandy conditions. See Lubrication Instructions below.	Engine oil has not been changed or filter has not been cleaned.

Table 1. Field Preventive Maintenance Checks and Services. – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	1-2 Months	Battery, maintenance-free	Charge battery and verify condition monthly.	Battery is not serviceable.
6	300 Hours/ Weekly if not being used; daily if it is being used	Fuel filter/water separator	Visually inspect, and drain water. Remove and replace fuel filter/water separator element (WP 0060).	If filter system is missing.
7	300 Hours/ Bi-annual if not being used; daily if it is being used	Aux Fuel Pump Filter	Visually inspect, and drain water. Remove and replace aux fuel pump filter (WP 0059).	If filter system is missing.
8	300 Hours/ Weekly	Electrical system	Inspect receptacle, terminal lugs, and wires for damage, corrosion, or evidence of electrical short. Check for bent, broken, or missing terminal lugs. Clean deposits from receptacle and terminal lugs.	Terminal lugs are damaged, missing, or broken.
9	500 Hours/ Semiannually	Frequency Converter (A8)	1. Check area around Frequency Converter (A8) for water. Test gaskets for water seepage. 2. WP 0063 to replace gaskets.	Gaskets are loose or not sealing properly.
10	500 Hours/ Semiannually	Engine air filter	Remove and replace engine air filter (WP 0011, Air Filter).	Engine air filter has not been replaced.
11	500 Hours/ Annually	Engine fuel injection pump	1. Inspect fuel injection pump for damage and evidence of leakage. Check area around pump sealing gasket for leaks. 2. TM 9-2815-257-24 (WP 0131) for pump and gasket replacement.	Fuel injection pump is damaged or leaking, or pump sealing gasket is leaking.
12	Initially @ 20 hours, then every 200 hours	Engine valves	Adjust engine valve clearance in accordance with TM 9-2815-257-24.	Engine valves are not properly adjusted.
13	1000 Hours	Engine fuel injector nozzle	Remove and replace fuel injector nozzle in accordance with TM 9-2815-257-24.	Fuel injector nozzle has not been replaced.
14	Weekly	Muffler	1. Check mounting hardware to ensure they are of the right torque. If loose, properly torque. If threads are damaged, replace bolts, add locking compound and torque.	Mounting bolts are working loose, exhaust leaks, holes are in muffler, or muffler blanket is torn.

Table 1. Field Preventive Maintenance Checks and Services. – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			2. Check for corrosion, rust, cracks, etc.	
15	500 Hours	Main access cover gaskets	Check gaskets to ensure they fit properly. Check for cracks and if they are frayed, torn, or missing.	Gaskets are cracked, frayed, torn, or missing.

MANDATORY REPLACEMENT PARTS

There are no replacement parts required for these PMCS procedures.

LUBRICATION INSTRUCTIONS

In dusty and dry environments, change oil and air filter ahead of schedule to reduce generator set problems.

- These lubrication instructions are for field level maintenance personnel. Lube intervals (on-condition or hard time) are based on normal operation. Lube more during constant use and less during inactive periods. Use correct grade of lubricant for seasonal temperature expected. See Table 2.
- Always wipe clean all oil filler components before starting your lube service. Use correct type or grade of oil. Overfilling will cause spillage and harm engine components.
- Change engine oil filter, as applicable, when:
 - It is known to be contaminated or clogged.
 - The prescribed hard-time services interval has arrived.
- This generator set is not enrolled in the Army Oil Analysis Program (AOAP). Hard-time service intervals apply.
- For equipment under manufacturer's warranty, hard-time oil service intervals must be followed. Intervals must be shortened if lubricants are known to be contaminated or if operation is under adverse conditions such as longer-than-usual operating hours, extended idling periods, or extreme dust. **CHANGE OIL AT 50-HOUR INTERVALS IN EXTREMELY DUSTY ENVIRONMENTS.**

Table 2. Lubricant Table for Generator Set MEP-831A/MEP-832A.

LUBRICATION MIL SYM-BOL SPECIFICATION	TEMPERATURE RANGE	SYSTEM CAPACITY	INTER-VAL (HOURS)	MAN-HOURS
MIL-L-46167, OEA	-25 to +40 °F (-31 to +5 °C)	**1.2 qt (1.1 liters) / 1.1 qt (1.04 liters)	*100/200	0.25
MIL-L-2104, OE/HDO-15/40	+5 to +120 °F (-15 to +49 °C)	**1.2 qt (1.1 liters) / 1.1 qt (1.04 liters)	*100/200	0.25
* Lube intervals for L70AE-DEGFR are 100 Hours / Semiannually. Lube intervals for L70N6EZ0T9EAFD are 200 Hours / Semiannually. Applicable interval and capacity can be identified by referencing the oil capacity plate on the inside of the main access cover.				
** System capacity for L70AE-DEGFR is 1.2 qt (1.1 liters) and for L70N6EZ0T9EAFD is 1.1 qt (1.05 liters).				

Table 2. Lubricant Table for Generator Set MEP-831A/MEP-832A. – Continued

LUBRICATION MIL SYM-BOL SPECIFICATION	TEMPERATURE RANGE	SYSTEM CAPACITY	INTER-VAL (HOURS)	MAN-HOURS
MIL-L-2104, OE/HDO-10	-15 to +40 °F (-26 to +5 °C)	**1.2 qt (1.1 liters) / 1.1 qt (1.04 liters)	*100/200	0.25
MIL-L-2104, OE/HDO-30	+15 to +90 °F (-9 to +32 °C)	**1.2 qt (1.1 liters) / 1.1 qt (1.04 liters)	*100/200	0.25
MIL-L-2104, OE/HDO-40	+30 to +120 °F (-1 to +49 °C)	**1.2 qt (1.1 liters) / 1.1 qt (1.04 liters)	*100/200	0.25
* Lube intervals for L70AE-DEGFR are 100 Hours / Semiannually. Lube intervals for L70N6EZ0T9EAFD are 200 Hours / Semiannually. Applicable interval and capacity can be identified by referencing the oil capacity plate on the inside of the main access cover.				
** System capacity for L70AE-DEGFR is 1.2 qt (1.1 liters) and for L70N6EZ0T9EAFD is 1.1 qt (1.04 liters).				

6. Drain and service engine oil and filter as follows:

- a. Unlock main access cover latches and lift cover to open.
- b. Place oil catch pan under oil drain plug (Figure 1, Item 1).
- c. Remove engine oil fill cap (Figure 1, Item 2) to vent engine crankcase while draining.
- d. Remove oil drain plug (Figure 1, Item 1). Move oil drain valve (Figure 1, Item 7) to OPEN position and drain oil from crankcase.
- e. Once oil is drained, replace drain plug (Figure 1, Item 1) and move valve (Figure 1, Item 7) to CLOSE position. Remove oil catch pan. Dispose of oil in accordance with local ordinance.
- f. Remove oil filter (Figure 1, Item 3) from crankcase cover (Figure 1, Item 4) by removing bolt (Figure 1, Item 5). Remove and discard O-ring (Figure 1, Item 6).
- g. Inspect oil filter (Figure 1, Item 3) for obvious damage. Check filter's mesh material for damage. Clean out clogging dirt and residue. Replace, as required, and dispose of in accordance with local ordinance.
- h. Using a clean rag, inspect area around oil filter port for evidence of leakage. Clean area of dirt and accumulated grime.
- i. Apply a light coat of lubricating oil to new O-ring (Figure 1, Item 6) and place on oil filter.
- j. Slide oil filter (Figure 1, Item 3) into crankcase cover (Figure 1, Item 4) and secure using bolt (Figure 1, Item 5). Do not over tighten bolt. Damage to filter will occur.
- k. Fill engine with required oil until level reaches threaded opening of oil fill cap (Figure 1, Item 2) (up to 1.2 quarts (1.1 liters)). See Table 2 for recommended oils. There should be at least two threads visible in the oil fill opening of the engine block when the engine is full of oil.
- l. Replace oil fill cap (Figure 1, Item 2) and tighten.
- m. Close main access cover and secure, using latches.

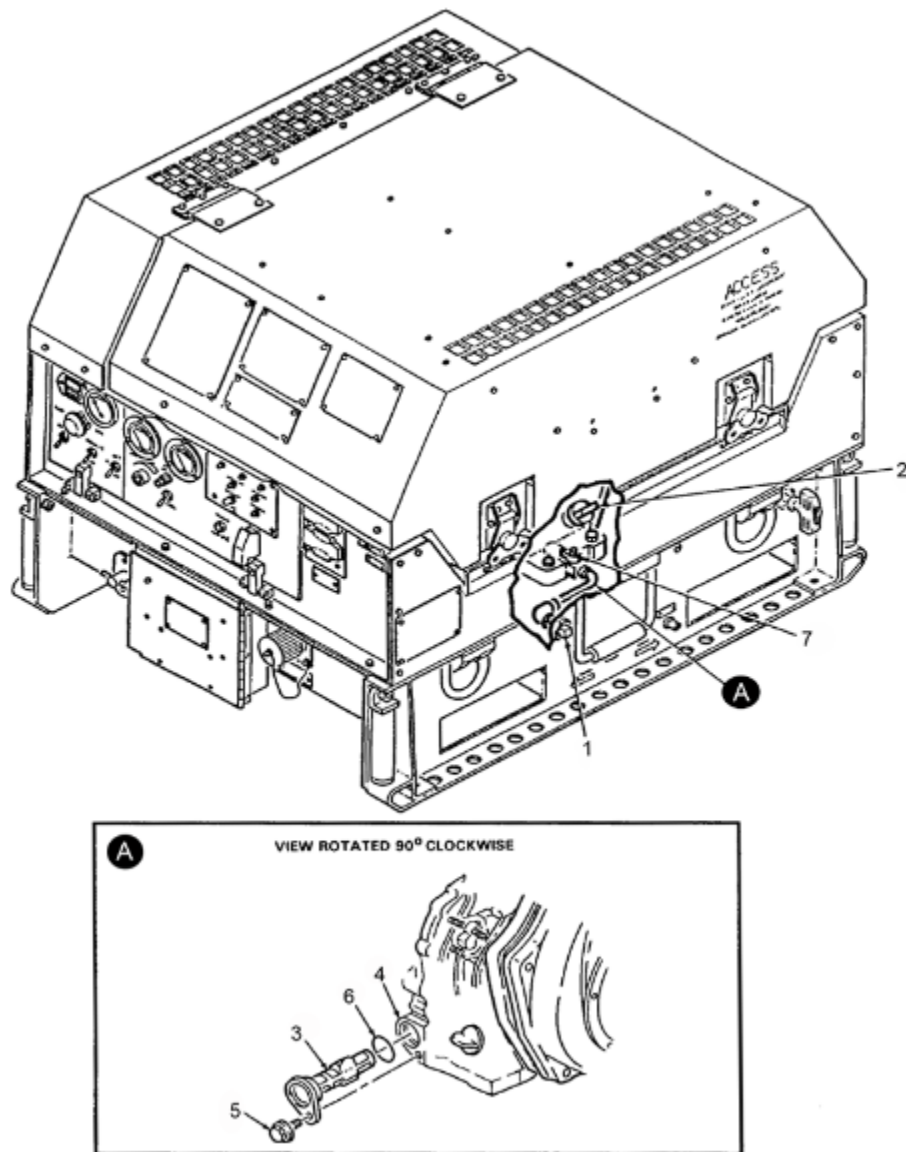


Figure 1. Engine Oil Servicing.

END OF WORK PACKAGE

FIELD MAINTENANCE
GENERATOR SET: INSPECT, SERVICE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Materials/Parts

Paint, CARC, Green (WP 0136, Table 1, Item 19)
Paint, CARC, Black (WP 0136, Table 1, Item 18)

Equipment Condition

Generator set shut down (WP 0005)

INSPECT

1. Inspect generator set main access cover and housing for dents, cracks, warping, or other damage. Check all covers, ducts, and panels for damage and ensure they are securely attached (Figure 1).
2. Inspect painted surfaces for chips, scratches, bare metal, roughness, or corrosion.
3. Inspect main access cover and panel latches for proper operation. Latches should operate smoothly, free of binding.
4. Open main access cover and inspect insulation material for damage. Ensure insulation is securely attached to component.
5. Inspect generator set lifting handles (Figure 1, Items 7 and 9) and tie-down rings (Figure 1, Item 8). Ensure they are securely attached.

END OF TASK**SERVICE**

Service in accordance with established preventive and scheduled maintenance procedures and limits.

SERVICE – CONTINUED

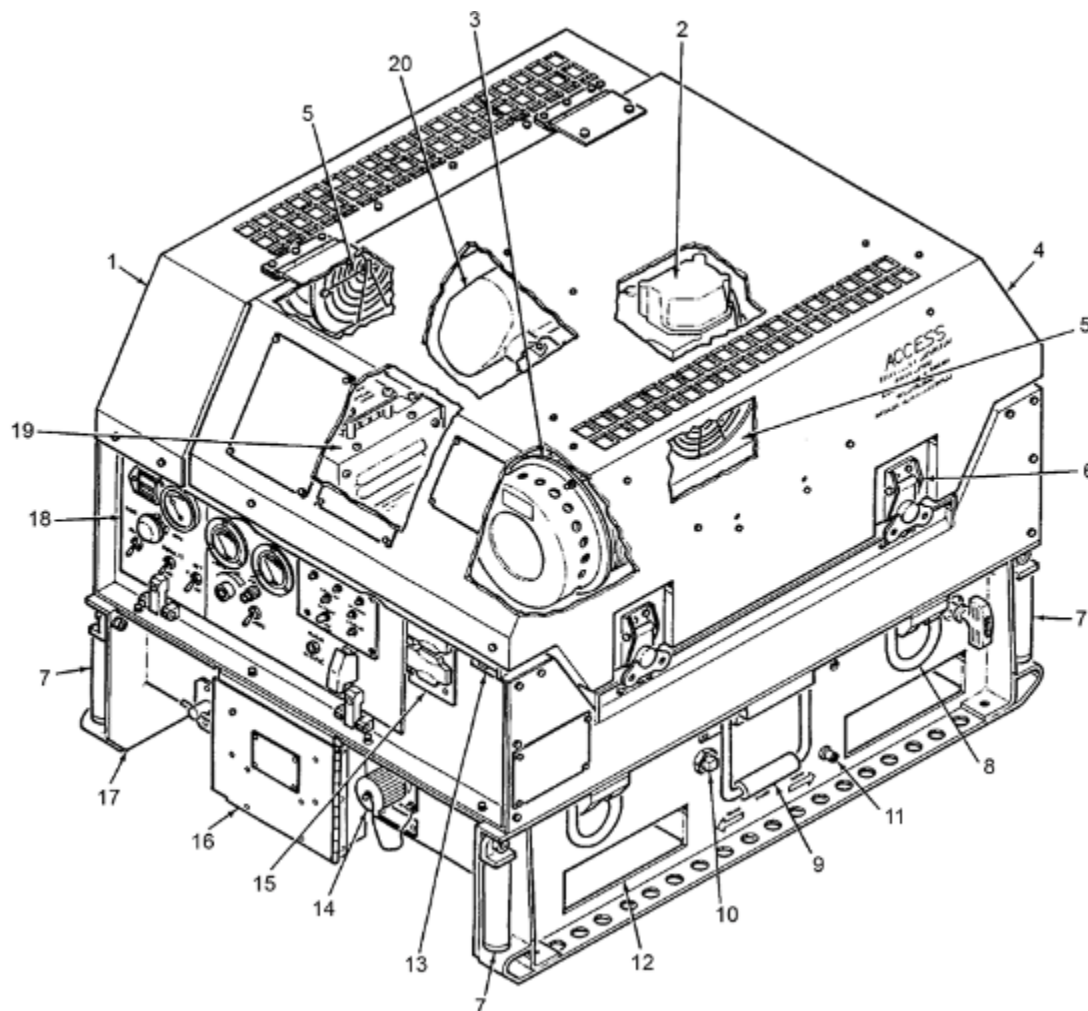


Figure 1. Generator Set.

Table 1. Figure 1 Legend.

ITEM	DESCRIPTION
1	Enclosure Assembly
2	Diesel Engine
3	Permanent Magnet Alternator (PMA)
4	Enclosure Cover
5	Cooling Fan
6	Cover Latch
7	Lifting Handle
8	Tie-Down Ring
9	Lifting Handle
10	Oil Drain Plug

SERVICE – CONTINUED**Table 1. Figure 1 Legend. – Continued**

ITEM	DESCRIPTION
11	Fuel Drain Plug
12	Forklift Opening
13	GFCI (60 Hz only)
14	NATO Slave Receptacle
15	Convenience Receptacle (60 Hz only)
16	Output/Load Terminal Cover
17	Skid Base
18	Control panel
19	Frequency Converter (A8)
20	Exhaust System

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**ENGINE ASSEMBLY, DIESEL: INSPECT, SERVICE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

References

WP 0131

Equipment Condition

Generator set shut down (WP 0005)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect engine (Figure 1) for obvious damage. Clean, as required, to view all components carefully. Look for signs of fluid leakage. Check all sealing areas and surfaces.
2. Inspect engine fuel and oil lines for cracks, cuts, abrasions, evidence of leakage, and obvious damage. Check fluid fittings and connectors, and ensure they are securely attached.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Inspect wiring insulation for damage. Ensure all connectors and terminal lugs are securely attached.
4. Conduct a detailed inspection of suspect components in accordance with appropriate maintenance paragraph.
5. Replace any component damaged to the extent it will affect safe operation of generator set.

SERVICE

Service in accordance with established preventive and scheduled maintenance procedures established in TM 9-2815-257-24.

INSPECT – CONTINUED

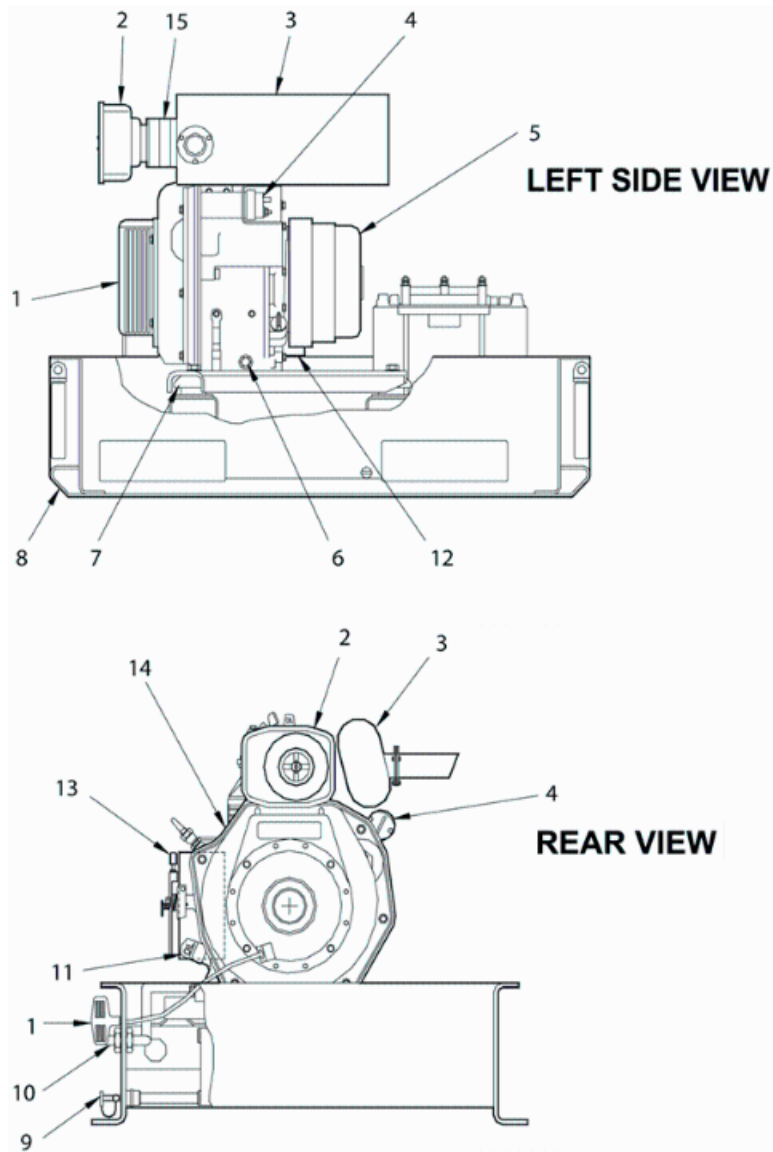


Figure 1. Engine Assembly (Sheet 1 of 2).

INSPECT – CONTINUED

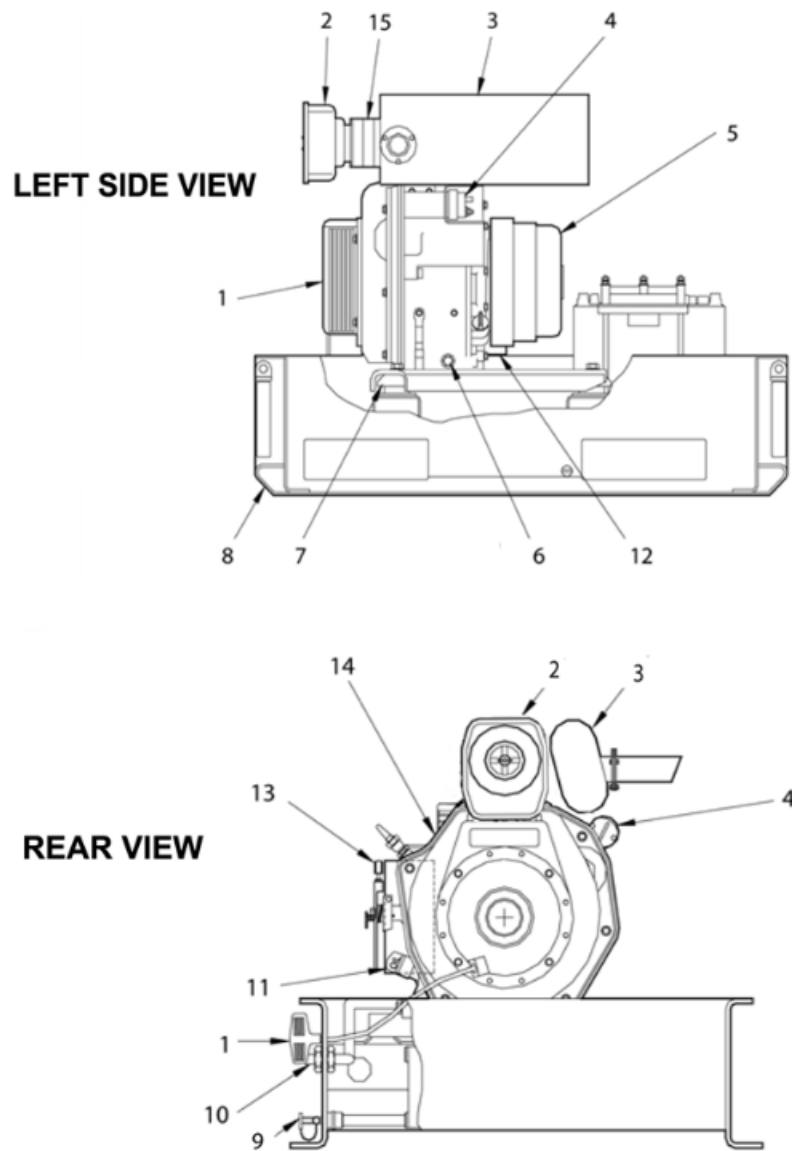


Figure 1. Engine Assembly (Sheet 2 of 2).

Table 1. Figure 1 Legend.

ITEM	DESCRIPTION
1	Recoil System
2	Air Filter
3	Muffler
4	Starter Motor
5	Generator
6	Temperature Switch

INSPECT – CONTINUED**Table 1. Figure 1 Legend. – Continued**

ITEM	DESCRIPTION
7	Vibration Mount
8	Skid Base
9	Fuel Drain Plug
10	Oil Drain Plug
11	Oil Fill Cap/Gauge
12	Oil Pressure Switch
13	Governor Actuator
14	Diesel Engine
15	Manifold Heater

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**GOVERNOR CONTROL MODULE: INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References - cont'd

WP 0020

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down, and properly grounded (WP 0005)

Battery cables disconnected (WP 0026)

Cable disconnected from NATO Slave Receptacle (WP 0066)

References

WP 0005

INSPECT

1. Turn quarter-turn fasteners (Figure 1, Item 1) to unlock, and swing open control panel.
2. Locate and inspect governor control module for corrosion, evidence of electrical short, and obvious damage.
3. Locate and inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

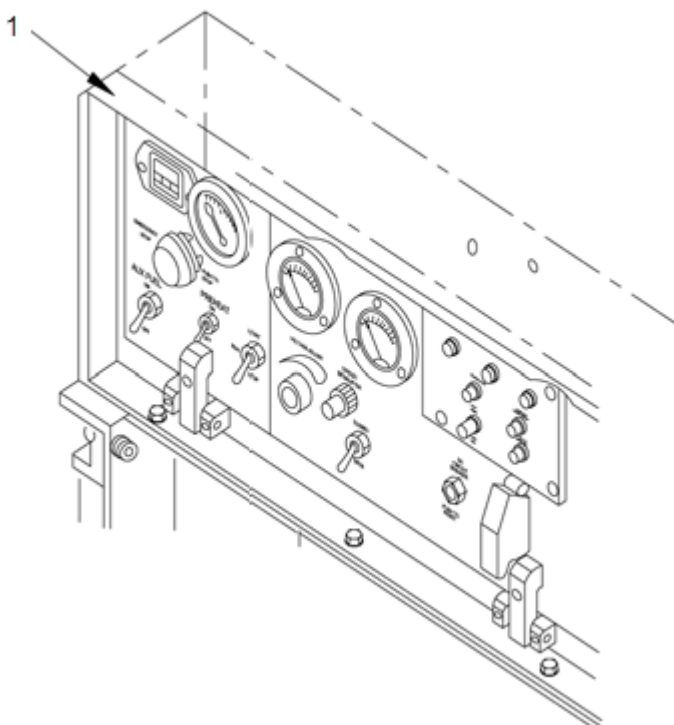
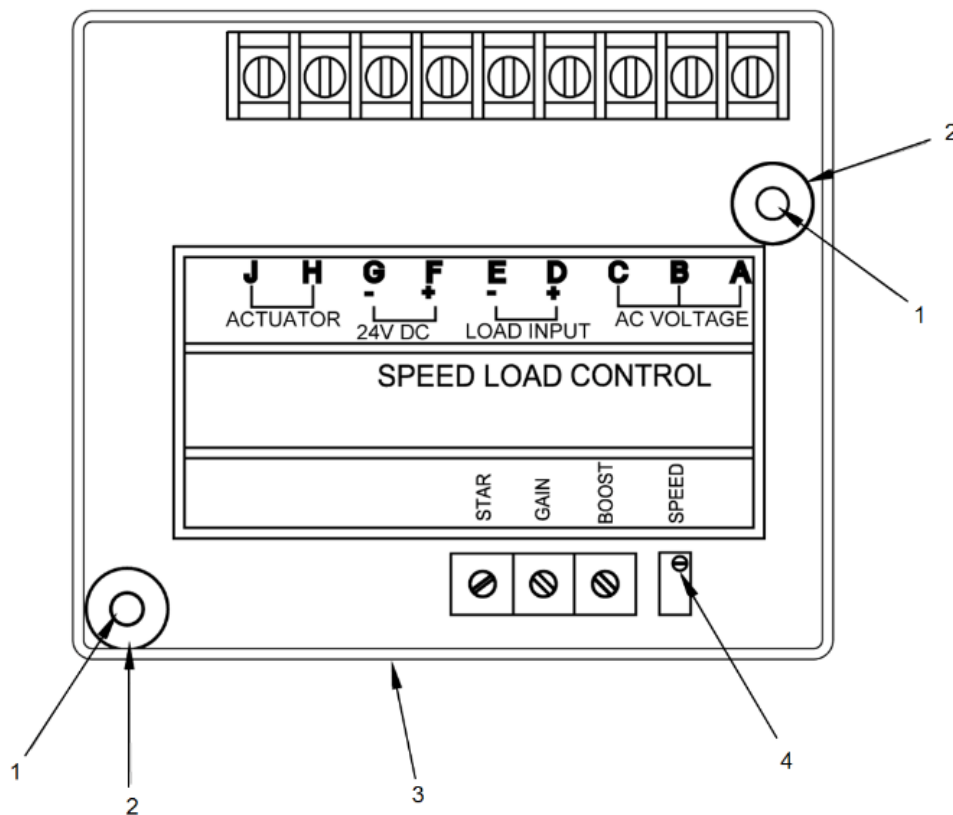


Figure 1. Control Panel..

END OF TASK**TEST**

1. Install governor control module (Figure 2) in generator set and perform governor actuator adjustment in accordance with WP 0020.
2. Start generator set and operate at no load. Open control panel to allow access to governor control module. Voltage between terminals F and G should be 24 VDC. Voltage between terminals J and H should be 5.3 VDC. Voltage between terminals D and E should be 0 VDC. Voltage between terminals A and B, B and C, and C and A should be 178+/-2 VAC.
3. Close circuit interrupter and apply full load to generator set. Voltage between terminals F and G should be 24 VDC. Voltage between terminals J and H should be 11 VDC. Voltage between terminals D and E should be 0 VDC. Voltage between terminals A and B, B and C, and C and A should be 193+/-2 VAC.
4. Open circuit interrupter and shut down generator set (WP 0005, Generator Set Shutdown).

**Figure 2. Governor Control Module.****END OF TASK****REMOVE**

1. Tag and disconnect electrical wiring from governor control module (Figure 2, Item 3).

REMOVE – CONTINUED

2. Remove governor control module (Figure 2, Item 3) from inside wall of control box by removing screw (Figure 2, Item 1) and captive washer assemblies (Figure 2, Item 2).

END OF TASK**REPLACE**

1. Install governor control module (Figure 2, Item 3) to inside wall of control box. Secure using screws (Figure 2, Item 1) and captive washer assemblies (Figure 2, Item 2).
2. Connect electrical wiring to governor control module (Figure 2, Item 3).
3. Close control panel and lock in place using quarter-turn fasteners.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**GOVERNOR ACTUATOR ASSEMBLY: INSPECT, TEST, ADJUST, REMOVE, REPLACE****INITIAL SETUP:****Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
 Screwdriver, Jewelers Kit (WP 0133, Table 2, Item 5)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down and properly grounded (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Materials/Parts

Sealing Compound Adhesive, Loctite 242 (WP 0136, Table 1, Item 23)

INSPECTION OF INSTALLED ITEMS

1. Open main access cover.
2. Inspect governor actuator assembly (Figure 1, Item 11) for obvious damage. Inspect for corrosion and evidence of electrical short. Inspect linkage components for obvious damage or defects.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connector plug is securely attached.
4. Inspect actuator linkage rod (Figure 2, Item 4) for loose nuts.

END OF TASK**TEST**

1. Measure resistance at pigtail from governor actuator, J10 (Figure 2, Item 8). Resistance should be a minimum of 10 ohms.

END OF TASK**ADJUST**

1. Make sure governor actuator lever (Figure 2, Item 1) reaches its stop just prior to engine fuel lever (Figure 2, Item 5) reaching its stop.
 - a. Loosen locknut (Figure 2, Item 3) on top of actuator linkage rod (Figure 2, Item 4).
 - b. Adjust length by turning actuator linkage rod in or out of ball joint (Figure 2, Item 2).
 - c. Tighten locknut (Figure 2, Item 3).
2. Connect battery cables (WP 0026).

WARNING

With main access cover open, the noise level of the generator set when operating could cause hearing damage. Hearing protection must be worn when working within 3.0 m (10 ft. 6 in.) of the generator set while it is running. Failure to observe this warning could result in hearing loss.

ADJUST – CONTINUED

High voltage is produced when generator set is being operated. Use care when working around an open control panel when generator set is on. Improper operation of generator set or failure to follow this warning could result in severe personal injury or death by electrocution.

CAUTION

DO NOT loosen or adjust governor actuator magnet (Figure 4, Item 28). Magnet position is factory set.

3. Start generator set and run in no load condition.
4. Open control box panel to gain access to governor control module (Figure 3).
5. Connect multimeter between control module terminals A and B (Figure 3).
6. Adjust governor control module SPEED potentiometer (Figure 2, Item 6) to obtain a PMA frequency of 254 Hz (3,050 RPM) or a voltage of 178+/-2 VAC. Clockwise rotation of SPEED potentiometer increases frequency and voltage. Counterclockwise rotation of SPEED potentiometer decreases frequency and voltage.
7. With engine running, check gap between lever plate (Figure 4, Item 19) and governor actuator magnet (Figure 4, Item 28).
8. Gap should be 5/16 inch. Adjust gap by loosening locknut (Figure 4, Item 23) and screwing actuator linkage rod (Figure 4, Item 22) in or out of ball joint (Figure 4, Item 3).
9. Check gap and tighten locknut (Figure 4, Item 23).
10. Turn control module STAB potentiometer (Figure 3, Item 1) and GAIN potentiometer (Figure 3, Item 2) to full counterclockwise position.
11. Rotate STAB potentiometer (Figure 3, Item 1) clockwise until engine becomes unstable, then counterclockwise until it stabilizes.
12. Rotate GAIN potentiometer (Figure 3, Item 2) clockwise until engine becomes unstable, then counterclockwise until it stabilizes, and then a little further counterclockwise. Apply full rated load and close CIRCUIT INTERRUPTER switch.
13. Adjust control module BOOST potentiometer (Figure 3, Item 3) to obtain a PMA frequency of 288 Hz (3,450 RPM) or a voltage of 193+/-2 VAC. Clockwise rotation of BOOST potentiometer decreases frequency and voltage. Counterclockwise rotation of BOOST potentiometer increases frequency and voltage.
14. Check no load to rated load operation by opening and closing CIRCUIT INTERRUPTER switch and observing actuator magnet (Figure 4, Item 28) and lever plate (Figure 4, Item 19). If governor actuator lever plate makes contact with the magnet during ON/OFF load operation, reduce gain slightly by rotating GAIN pot (Figure 3, Item 2) counterclockwise.

NOTE

When applying rated load, engine speed should increase without a large initial drop in engine speed. When removing load, engine speed should decrease without a large initial surge in speed.

15. At no load, lift governor actuator lever (Figure 4, Item 17) and lock (Figure 4, Item 1) in manual start position. PMA frequency should be 317 Hz (3,800 RPM) or voltage should be 219+/-2 VAC.
16. Unlock (Figure 4, Item 1) governor actuator lever (Figure 4, Item 17) from manual start position.
17. Disconnect multimeter and close and lock control panel.
18. Shut down generator set.
19. Apply thread locking compound (Loctite 242 WP 0136, Table 1, Item 23) to linkage rod threads above or below all nuts (Figure 2, Items 3, 6, 7) where accessible, to prevent future loosening from vibration.

END OF TASK**REMOVE**

1. Unlock main access cover latches and lift cover to open.
2. Disconnect electrical plug from governor actuator assembly (Figure 4, Item 2).
3. Disconnect ball joint (Figure 4, Item 3) on engine linkage from lever (Figure 4, Item 4) on governor actuator assembly by removing screw (Figure 4, Item 5), washer (Figure 4, Item 6), and locknut (Figure 4, Item 7).
4. Remove governor actuator assembly (Figure 1, Item 11) by removing screws (Figure 1, Item 8), both lockwashers (Figure 1, Item 9), and both washers (Figure 1, Item 10).
5. Remove lever (Figure 4, Item 17) from lever (Figure 4, Item 4) by removing screw (Figure 4, Item 11), washer (Figure 4, Item 12), and nut (Figure 4, Item 13).
6. Release lever (Figure 4, Item 4) from governor actuator assembly (Figure 4, Item 2) by loosening screw (Figure 4, Item 14), washer (Figure 4, Item 15), and nut (Figure 4, Item 16).
7. Remove screw (Figure 4, Item 18), plate (Figure 4, Item 19), washer (Figure 4, Item 20), and nut (Figure 4, Item 21) from lever (Figure 4, Item 17).
8. Remove ball joint (Figure 4, Item 3) from actuator linkage rod (Figure 4, Item 22). Remove nuts (Figure 4, Items 23, 26, and 27) and spherical washer (Figure 4, Item 24).
9. Remove link bracket (Figure 4, Item 25) from engine, only if replacement is required.

END OF TASK**REPLACE**

1. Replace nuts (Figure 4, Items 23, 26, and 27), spherical washer (Figure 4, Item 24), and ball joint (Figure 4, Item 3) onto linkage rod (Figure 4, Item 22). Attach link bracket (Figure 4, Item 25) to engine.
2. Replace screw (Figure 4, Item 18), plate (Figure 4, Item 19), washer (Figure 4, Item 20), and nut (Figure 4, Item 21). Screw onto lever (Figure 4, Item 17).
3. Install lever (Figure 4, Item 4) to governor actuator assembly (Figure 4, Item 2). Secure by tightening screw (Figure 4, Item 14), washer (Figure 4, Item 15), and nut (Figure 4, Item 16).
4. Install lever (Figure 4, Item 17) to lever (Figure 4, Item 4). Secure using screw (Figure 4, Item 11), washer (Figure 4, Item 12), and nut (Figure 4, Item 13).
5. Replace governor actuator assembly (Figure 1, Item 11) using two screws (Figure 1, Item 8), lockwashers (Figure 1, Item 9), and washers (Figure 1, Item 10).
6. Connect ball joint (Figure 4, Item 3) on engine linkage with lever (Figure 4, Item 4) using screw (Figure 4, Item 5), washer (Figure 4, Item 6), and locknut (Figure 4, Item 7). Ensure linkage and actuator lever are in same plane (vertical when viewed from control box end of generator set).
7. Connect electrical plug to actuator.
8. Adjust actuator/governor linkage, as required, in accordance with ADJUST procedures above.
9. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

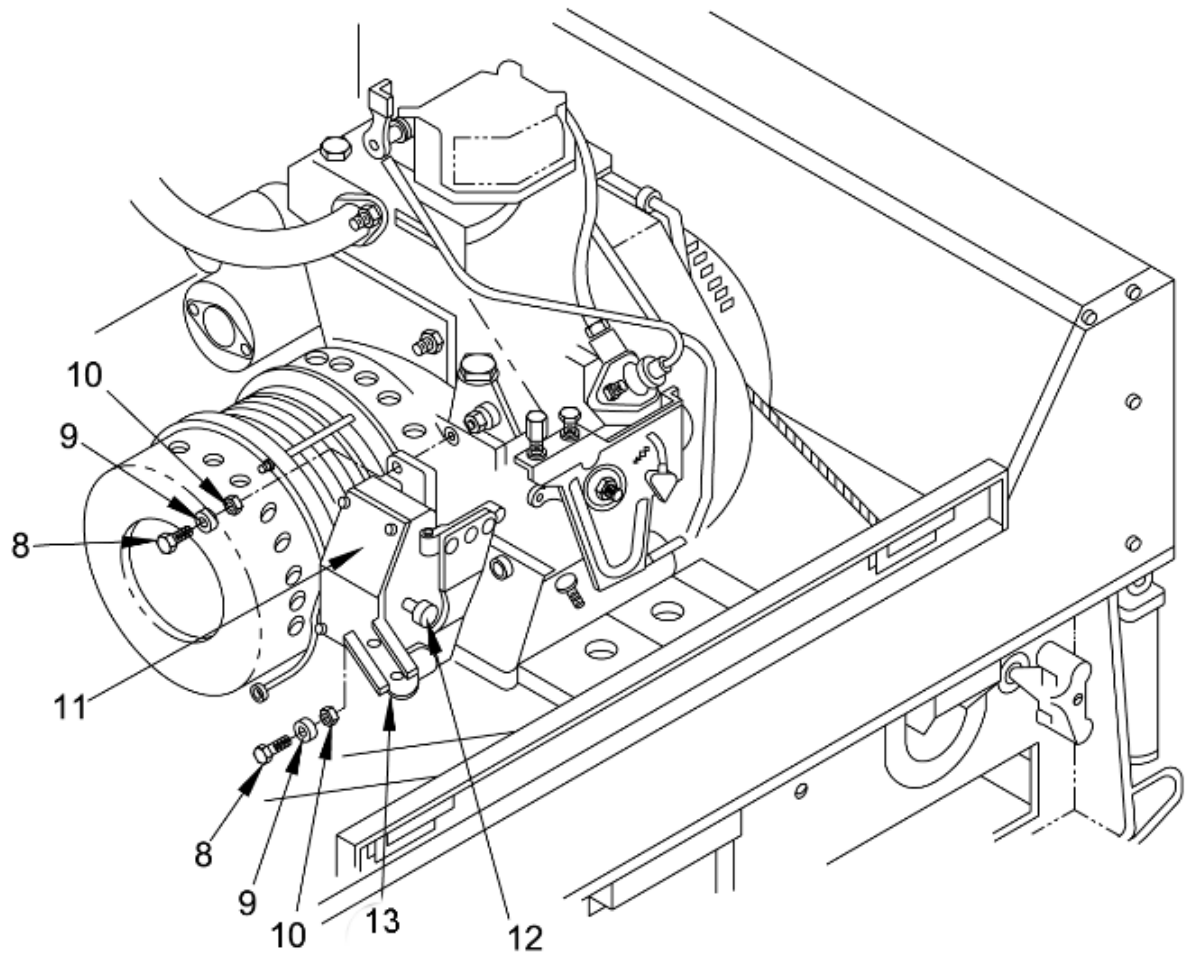


Figure 1. Governor Actuator Assembly.

REPLACE – CONTINUED

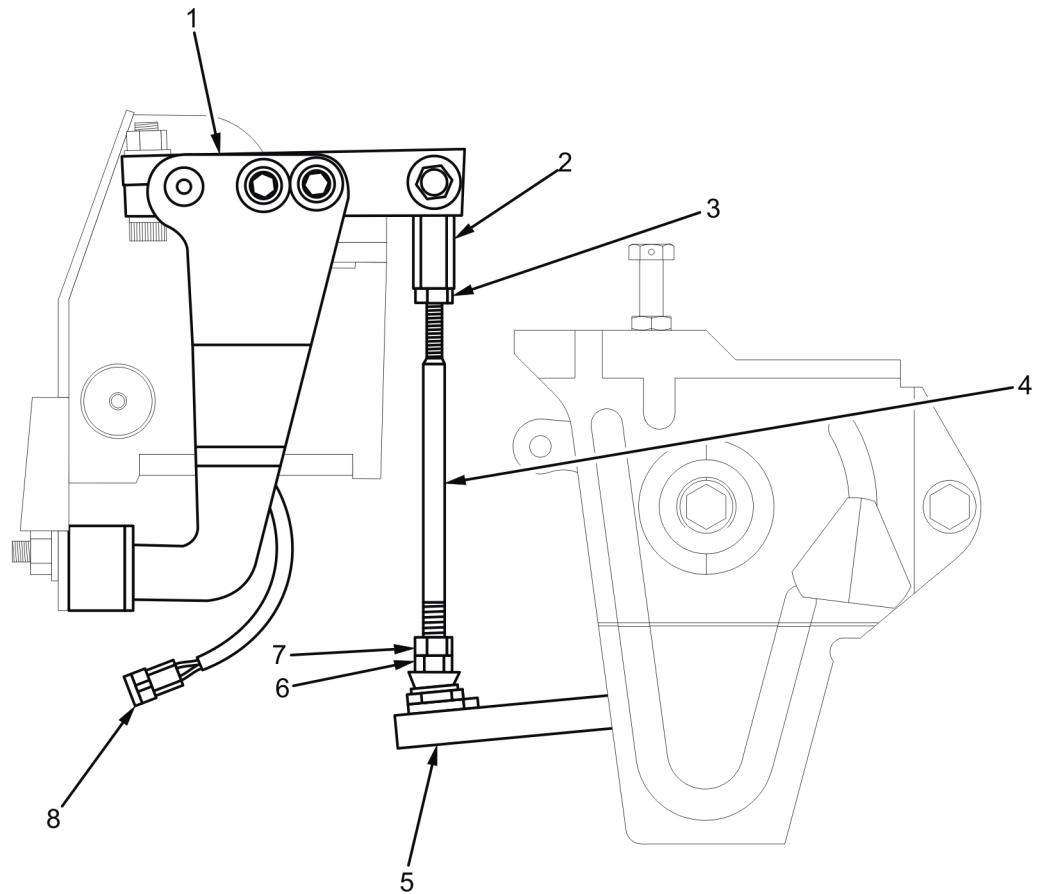


Figure 2. Governor Adjustment.

REPLACE – CONTINUED

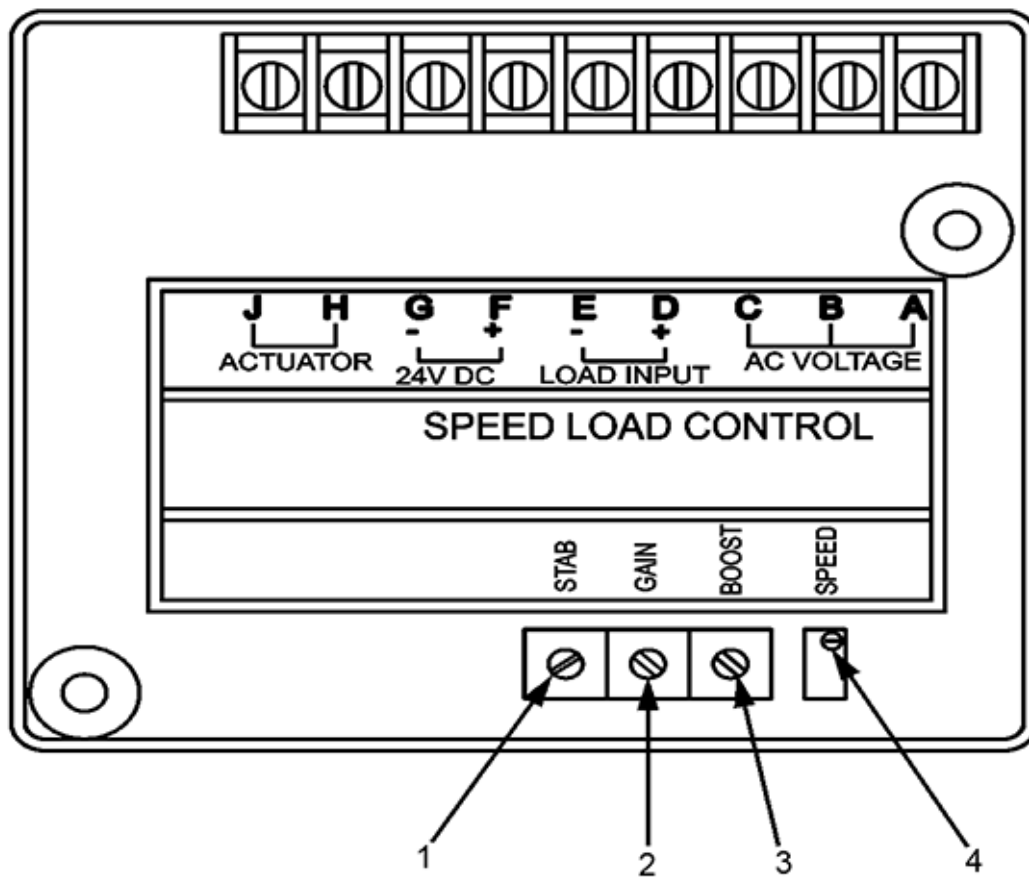


Figure 3. Governor Control Module.

REPLACE – CONTINUED

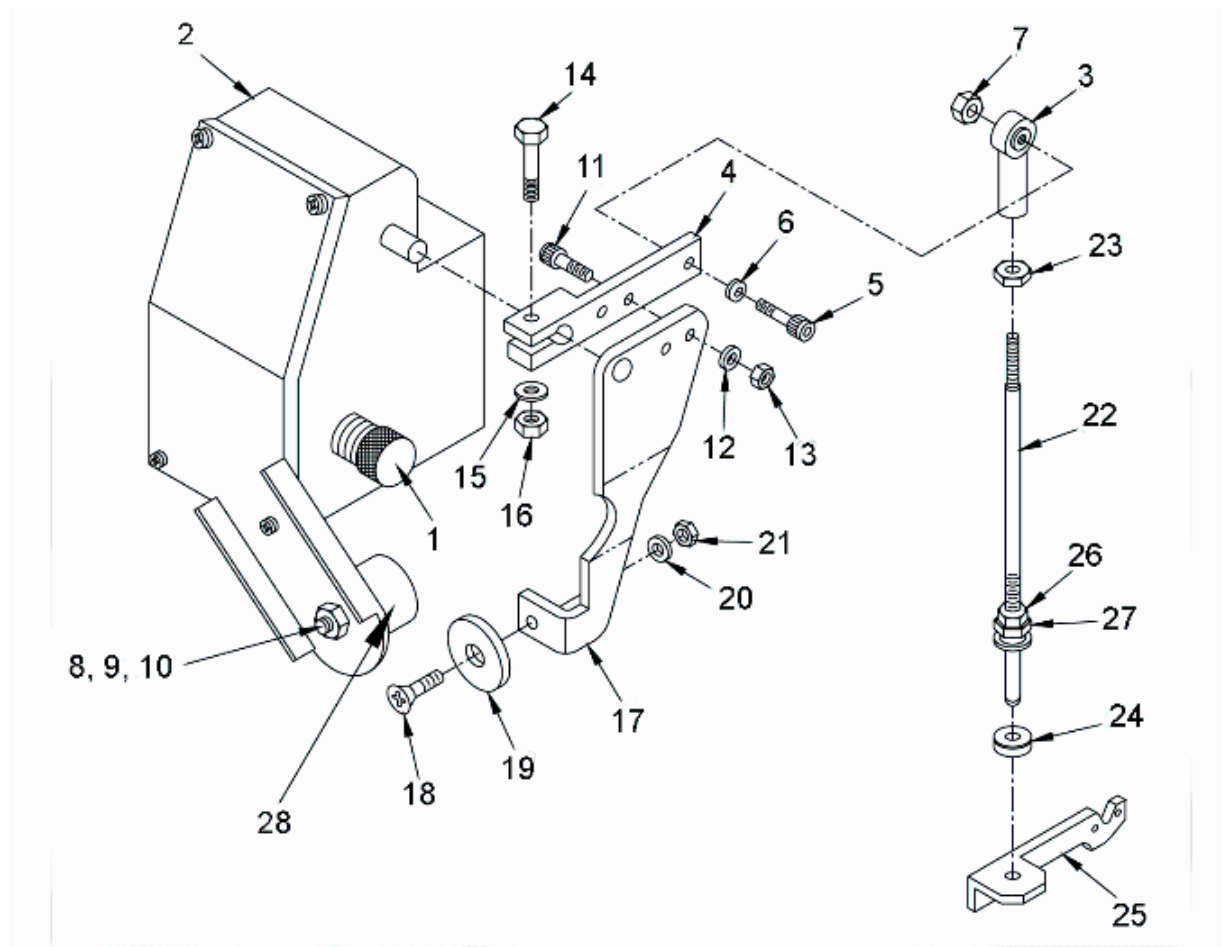


Figure 4. Governor Actuator.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE WIRING HARNESS: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
 Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Drawings Required

Engine Wiring Harness, 60 Hz (FO-3)
 Engine Wiring Harness, 400 Hz (FO-4)

INSPECT

1. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Inspect wiring insulation for damage (See FO-3).
2. Inspect connectors and terminal lugs. Ensure they are securely attached and free from corrosion and that there aren't any broken connector ends.

END OF TASK**REMOVE**

1. Unlock main access cover latches and lift cover to open. Disconnect generator set wiring harness plug (P7) from control box harness connector J7 (Figure 1, Item 1), located on rear of control box assembly.
2. Unlock and open control panel (Figure 1, Item 2) by turning quarter-turn fasteners (Figure 1, Item 3).
3. Tag and disconnect control box harness wires from control box components. See FO-3, 60 Hz Control Box Wiring Harness, and FO-4, 400 Hz Control Box Wiring Harness.
4. Release harness connector J7 (Figure 1, Item 1) from inside wall of control box by removing four screws with captive washers (Figure 1, Item 5).
5. Remove clamp (Figure 1, Item 6) by removing screw and captive washer assembly (Figure 1, Item 7) and washer (Figure 1, Item 8). Screw (Figure 1, Item 7) secures panel cable to control box wall.
6. Remove clamp (Figure 1, Item 9) from rear of control panel (Figure 1, Item 2) by removing nut (Figure 1, Item 10) and lockwasher (Figure 1, Item 11).
7. Remove control box wiring harness (Figure 1, Item 4) from control box.

END OF TASK**REPLACE**

1. Install control box harness connector J7 (Figure 1, Item 1) to inside wall of control box. Secure using four screws with captive washers (Figure 1, Item 5).

REPLACE – CONTINUED

2. Connect control box harness wires to control box components. See FO-3, 60 Hz Control Box Wiring Harness, and FO-4, 400 Hz Control Box Wiring Harness.
3. Install clamp (Figure 1, Item 6) using screw and captive washer assembly (Figure 1, Item 7) and washer (Figure 1, Item 8).
4. Install clamp (Figure 1, Item 9) using nut (Figure 1, Item 10) and lockwasher (Figure 1, Item 11). Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 3).
5. Connect generator set wiring harness plug (P7) to control box harness connector J7 (Figure 1, Item 1).
6. Close main access cover and lock in place using latches.

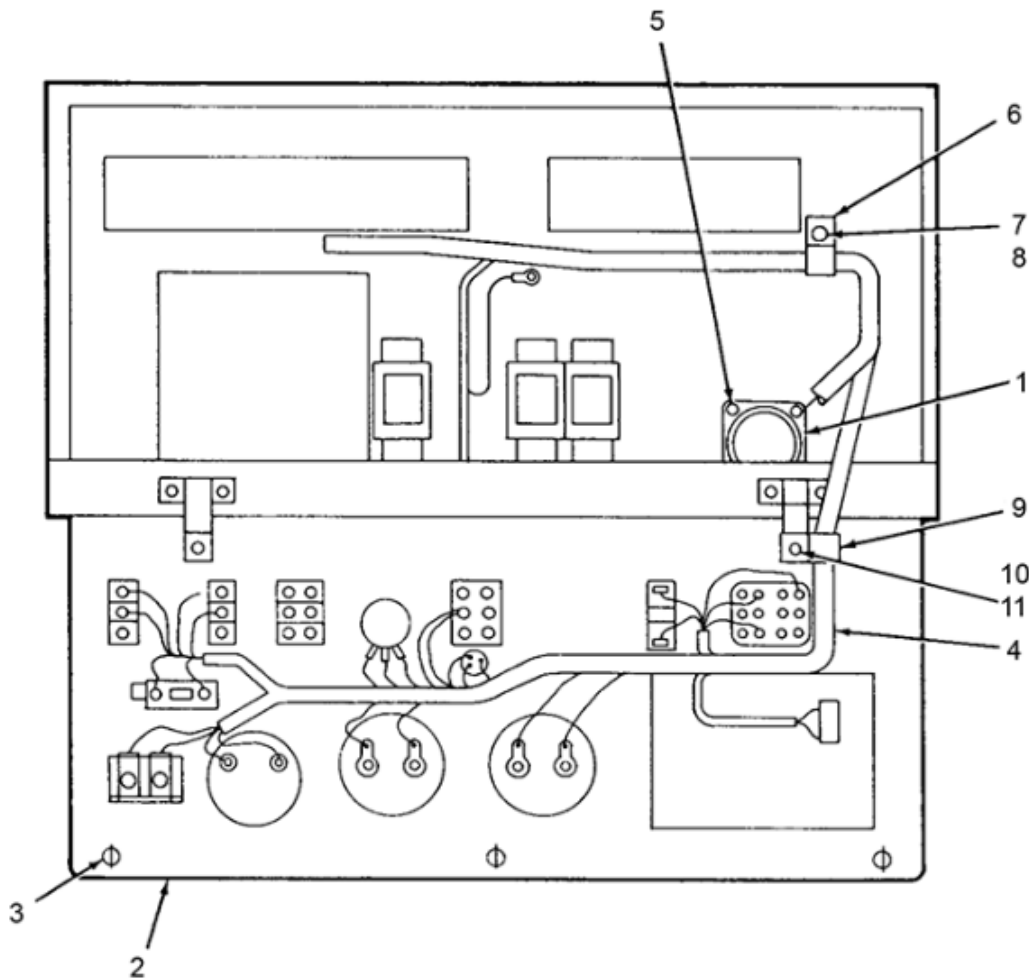


Figure 1. Engine Wiring Harness.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERMANENT MAGNET ALTERNATOR (PMA): INSPECT, TEST

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition - cont'd

Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (2)

Drawings Required

Engine Wiring Harness Diagram, 400 Hz (FO-4)
 Engine Wiring Harness Diagram, 60 Hz (FO-3)

Equipment Condition

Generator set shut down (WP 0005)

INSPECT

1. Inspect Permanent Magnet Alternator (PMA) (G1) components (Figure 2) for damage. To view all components, clean as required.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Inspect wiring insulation for damage. Ensure all connectors and terminal lugs are securely attached.
3. Inspect all components (Figure 2) for corrosion. Check attaching parts for crossed, stripped, or damaged threads.
4. Inspect grommet (Figure 2, Item 2) for damage. Inspect label (Figure 2, Item 1) for legibility.
5. Unplug P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) from the Frequency Converter (A8) (Figure 3, Item 1). P15 and P16 connect the PMA to the Frequency Converter (A8).
6. Inspect socket terminals of P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) for widening or deformity.
7. Plug P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) to the Frequency Converter (A8) (Figure 3, Item 1).

END OF TASK**TEST**

1. Open VOLTAGE SELECTOR switch door (Figure 3, Item 3) on top of Frequency Converter (A8) (Figure 3, Item 1).
2. Unplug P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) from the Frequency Converter (A8) (Figure 3, Item 1).

CAUTION

Do not force the test probes of the measuring instrument into the socket terminal of the connector as this may widen the socket, thus deforming its shape to a point where it may no longer provide a reliable connection to the mating pin of the Frequency Converter (A8) (Figure 3, Item 1).

3. Set multimeter to measure resistance on low range (less than 400 ohms). Measure resistance on P15 (Figure 1) between A1 to B1, A1 to C1, B1 to C1, A2 to B2, A2 to C2, B2 to C2. Readings should be less than 2.5 ohms.
4. Measure resistance on P16 (Figure 1) between A3 to B3, A3 to C3, B3 to C3, A4 to B4, A4 to C4, B4 to C4. Readings should be less than 2.5 ohms.

TEST – CONTINUED

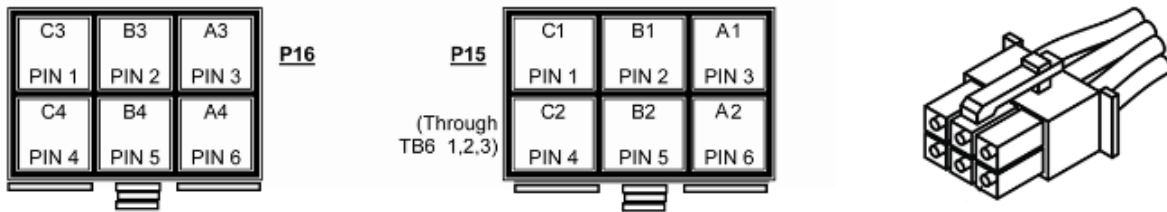


Figure 1. Pin Winding.

5. Select a multimeter range of high resistance (higher than 1 megohm). Measure resistance between all socket terminals on P15 and P16 (Figure 1) IAW Table 1. Readings should either read OL or over 200K ohms.

Table 1. High Range Resistance.

FROM	TO	TO	TO
A1	A2	B2	C2
A1	A3	B3	C3
A1	A4	B4	C4
B1	A2	B2	C2
B1	A3	B3	C3
B1	A4	B4	C4
C1	A2	B2	C2
C1	A3	B3	C3
C1	A4	B4	C4
A2	A3	B3	C3
A2	A4	B4	C4
B2	A3	B3	C3
B2	A4	B4	C4
C2	A3	B3	C3
C2	A4	B4	C4
A3	A4	B4	C4
B3	A4	B4	C4
C3	A4	B4	C4

6. Connect battery cables (WP 0026).

TEST – CONTINUED**WARNING**

High voltage is produced when generator set is being operated. Use care when working around an open control panel when generator set is on. Improper operation of generator set or failure to follow this warning could result in severe personal injury or death by electrocution.

With main access cover open, the noise level of the generator set when operating could cause hearing damage. Hearing protection must be worn when working within 3.0 m (10 ft. 6 in.) of the generator set while it is running. Failure to observe this warning could result in hearing loss.

When operating generator set, engine has hot metal surfaces that will burn flesh on contact. Take care not to touch hot parts. Failure to comply may cause injury or death to personnel.

Exhaust discharge contains deadly gases, including carbon monoxide. Do not operate generator set in enclosed area unless exhaust discharge is properly vented outside. Position generator set as far away from personnel, shelters, and occupied vehicles as possible. Failure to observe this warning could result in severe personal injury or death due to carbon monoxide poisoning.

7. Start generator set.
8. Set multimeter to measure voltage output. Measure voltage output P15 (Figure 1) between A1 to B1, A1 to C1, B1 to C1, A2 to B2, A2 to C2, B2 to C2. Minimum voltage readings should be 190 VAC.
9. Measure voltage output P16 (Figure 1) between A3 to B3, A3 to C3, B3 to C3, A4 to B4, A4 to C4, B4 to C4. Minimum voltage readings should be 190 VAC.
10. Remove J6 (Figure 4) from P6 (Figure 4).
11. Measure battery-charging winding output between pin 3 (Figure 4) and pin 4 (Figure 4) of P6 (Figure 4). Output should read approximately 32 to 52 VAC.
12. Shut the generator set down.
13. Connect J6 (Figure 4) to P6 (Figure 4).
14. Plug P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) into the Frequency Converter (A8) (Figure 3, Item 1).
15. Start the generator set and let it run for 1 to 2 minutes (leave the Selector Switch door (Figure 3, Item 3) open). Check voltage on top of Frequency Converter (A8) (Figure 3, Item 1) between L1 and neutral, between L2 and neutral, and between L1 and L2 is less than 1 V. This verifies that the Frequency Converter (A8) (Figure 3, Item 1) output voltage has shut off.
16. Ensure Selector Switch (Figure 3, Item 2) is in 120/240, 3 wire mode.
17. Close Selector Switch door (Figure 3, Item 3). Check voltage on top of Frequency Converter (A8) (Figure 3, Item 1) between L1 and neutral is 120 V, between L2 and neutral is 120 V, and between L1 and L2 is 240 V.
18. Shut the generator set down and place the Voltage Selector Switch (Figure 3, Item 2) to desired connection and close the Selector Switch Door (Figure 3, Item 3).

TEST – CONTINUED

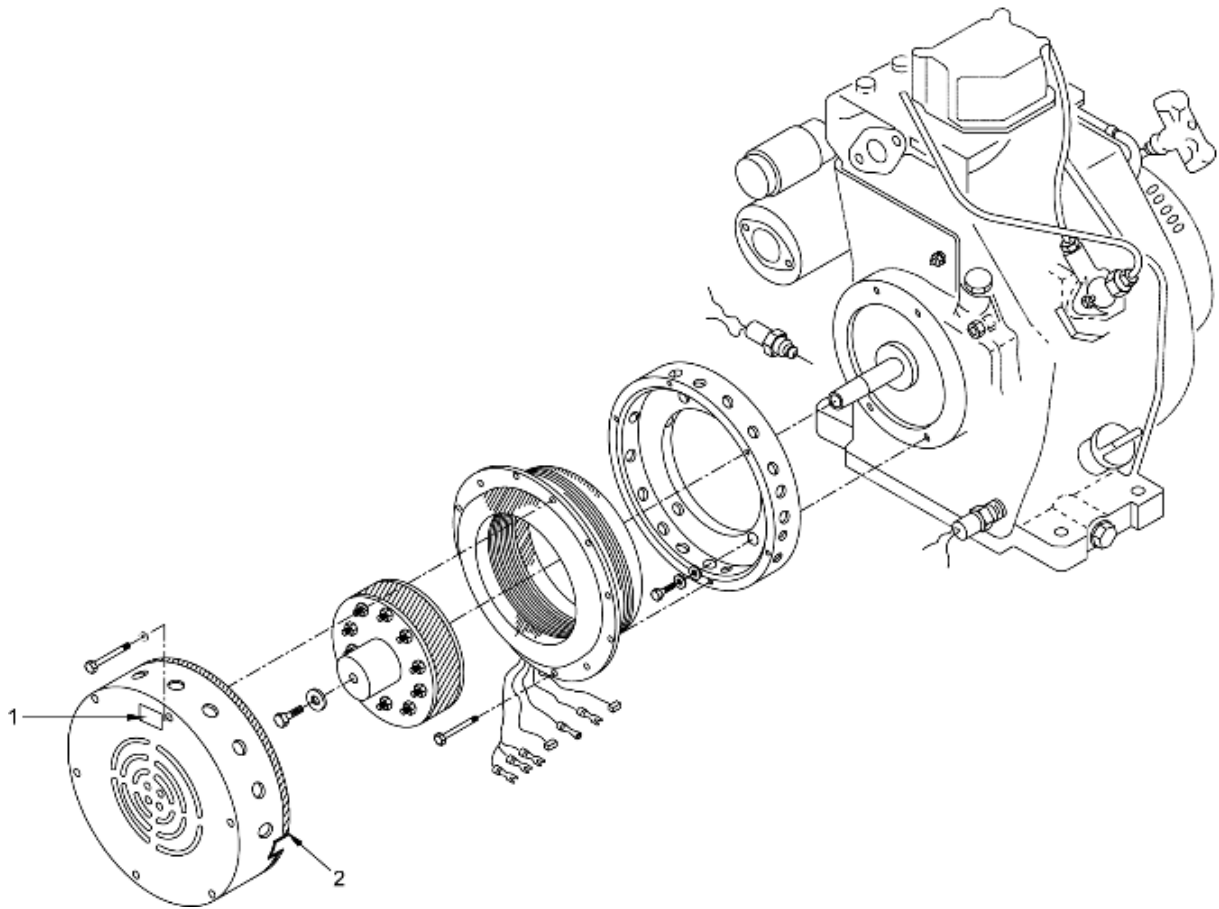


Figure 2. Permanent Magnet Alternator (G1).

TEST – CONTINUED

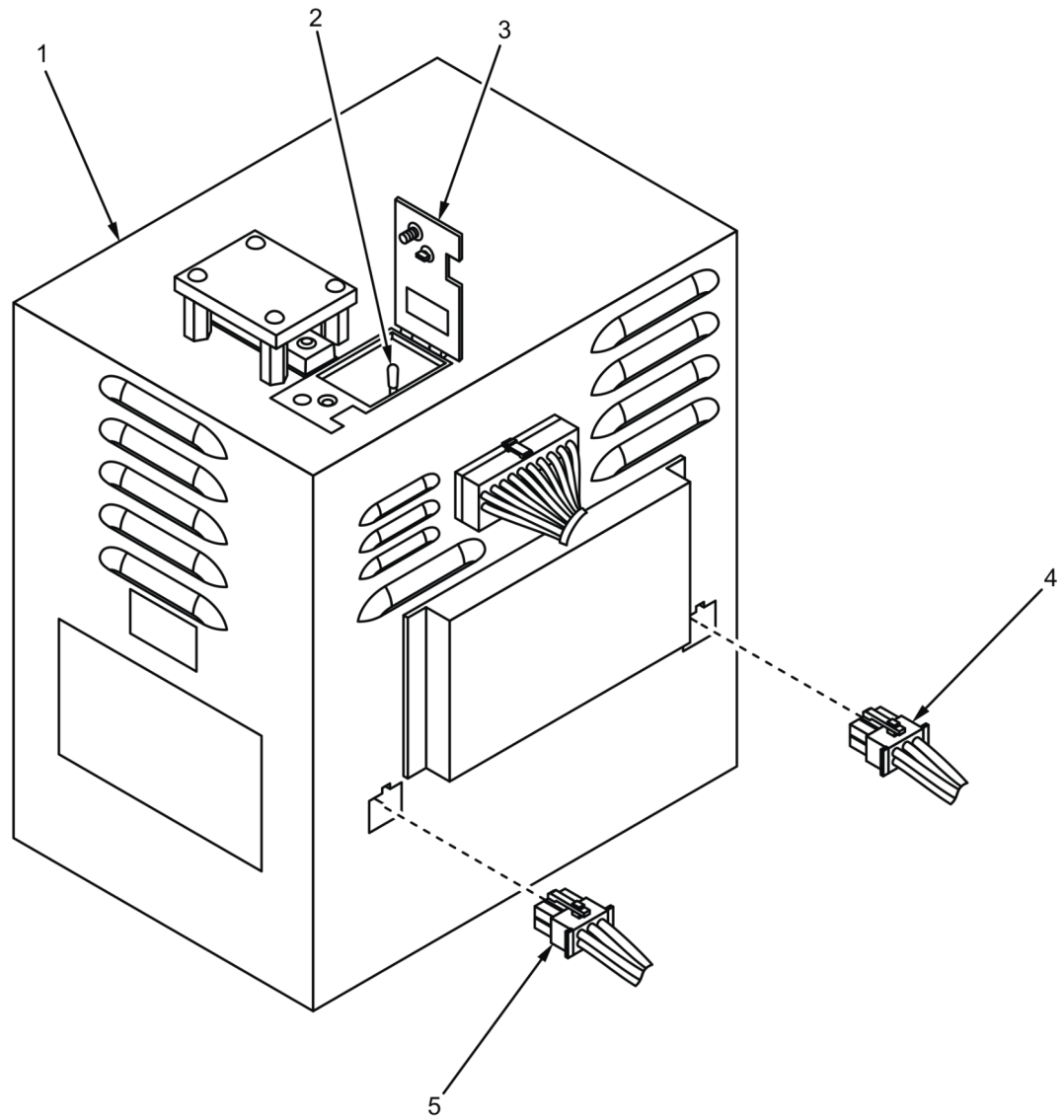


Figure 3. Frequency Converter (A8).

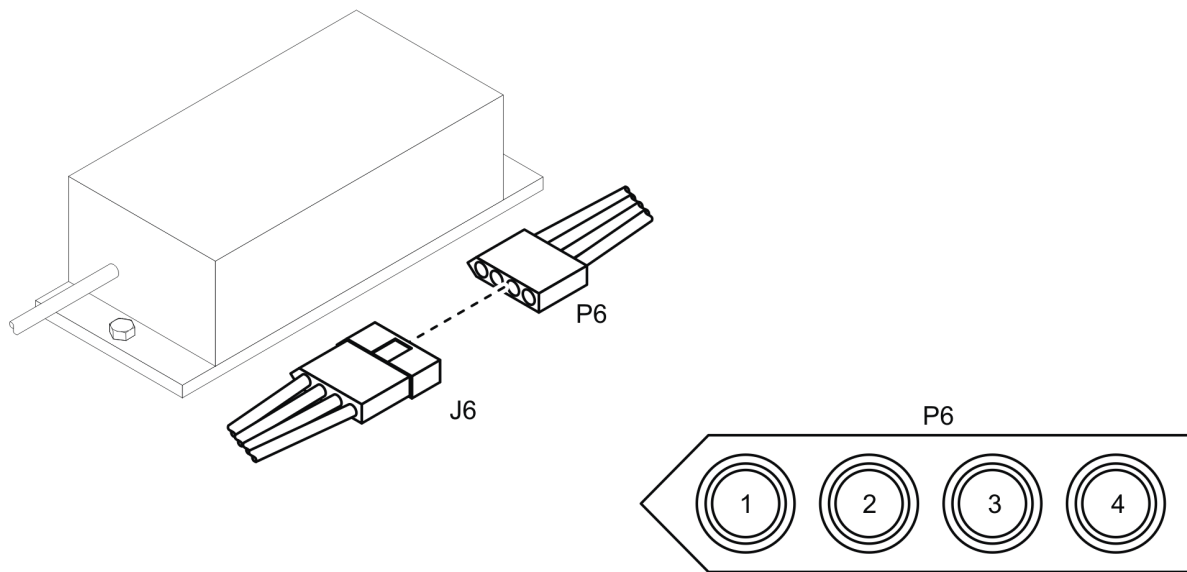
TEST – CONTINUED

Figure 4. Battery Charging Regulator (A9).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ELECTRICAL SYSTEM ASSEMBLY: INSPECT, TEST

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

References

WP 0032

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Drawings Required

Generator Set Wiring Diagram (FO-2)

INSPECT

1. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Inspect wiring insulation for damage (See FO-2).
2. Inspect connectors and terminal lugs. Ensure they are securely attached and free from corrosion and that there are no broken connector ends.

TEST

Test is limited to ensuring all wiring is securely attached and gauges, meters, etc., operate in normal condition. See WP 0032 for maintenance related to meters, gauges, and/or switches.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**BATTERY CHARGING REGULATOR: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Open main access cover.
2. Inspect battery-charging regulator for corrosion, evidence of electrical short, and obvious damage (Figure 1).
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.

END OF TASK**REMOVE**

1. At control panel (Figure 1, Item 6) turn quarter-turn fasteners to unlock and open control panel.
2. Unlock main access cover latches and lift cover to open.
3. Disconnect electrical plug (Figure 1, Item 5) from battery charging regulator (Figure 1, Item 1).
4. Remove battery-charging regulator (Figure 1, Item 1) from top of control box (Figure 1, Item 6) by removing screws (Figure 1, Item 2), washers (Figure 1, Item 3), and locknuts (Figure 1, Item 4).

END OF TASK**REPLACE**

1. Install battery-charging regulator (Figure 1, Item 1) to top of control box (Figure 1, Item 6). Secure using screws (Figure 1, Item 2), washers (Figure 1, Item 3), and locknuts (Figure 1, Item 4).
2. Connect electrical plug (Figure 1, Item 5) to battery charging regulator (Figure 1, Item 1).
3. Close main access cover and lock in place using latches.
4. Close control panel (Figure 1, Item 6) and lock in place using quarter-turn fasteners.

FIELD MAINTENANCE
BATTERY: INSPECT, TEST, SERVICE, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
 Tester, Battery Electrolyte Solution (WP 0133, Table 2, Item 4)

References

WP 0026

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Materials/Parts

Water, Distilled (WP 0136, Table 1, Item 27)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT**WARNING**

Battery acid can cause burns to unprotected skin. Wear safety goggles, chemical gloves, faceshield, apron, and avoid acid splash while working on the batteries. Failure to comply with this warning can cause severe personal injury.

WARNING

Batteries give off flammable gas. Do not smoke or use open flame when performing maintenance. Flames and explosion could result in severe personal injury or death. Failure to observe this warning could result in severe personal injury or death.

WARNING

Do not allow battery acid to contact skin or clothing. Contact of skin with battery acid liquid or inhalation of battery acid mist can cause severe burns, respiratory tract infection, and chronic bronchitis. If any battery acid liquid or mist contacts skin or eyes, immediately flush affected areas thoroughly with water. If vapors are inhaled, go to fresh air. Seek medical help immediately. Failure to observe this warning could result in severe personal injury or death.

1. Open main access cover.
2. Inspect battery cables (Figure 1, Item 1) for corrosion, evidence of electrical short, and obvious damage. Check for cuts, tears, or exposed wires.
3. Inspect for damaged battery case and for cracks, corrosion, or evidence of leakage. Inspect battery posts for corrosion.
4. Inspect for damaged and loose connections on terminal cables, and damaged or missing battery caps.

END OF TASK

TEST

1. Ensure proper charge using electrolyte solution tester. Specific gravity reading should be between 1.2767 and 1.2853.
2. Replace caps on battery.

END OF TASK**SERVICE****NOTE**

The generator set is designed to accept and operate with either a standard wet cell battery or a sealed maintenance-free battery. If a standard wet cell battery is used, check the electrolyte level and service as follows:

1. Disconnect battery (Figure 1, Item 7).
2. See WP 0026 for detailed inspection, cleaning, and repair of battery cables (Figure 1, Item 1).
3. Remove corrosion from cable terminals (Figure 1, Item 1) and battery posts (Figure 1, Item 2) using wire terminal brush.
4. Remove caps from battery (Figure 1, Item 7) and check electrolyte level of cells. Electrolyte level should be at bottom of each cap cylinder.
5. Add distilled water to each battery cell as required.
6. Replace battery caps.
7. Charge battery (Figure 1, Item 7) using battery charger (see procedure below).
8. If necessary contact next-higher level of maintenance to clean or replace batteries or battery terminals.

Charging Electrolyte Battery

1. Use a constant voltage charger (WP 0133) with a rating of at least 15 Amps. The electrolyte battery has a rated capacity of 13.6 Amp-hours, so the battery charger should have a current rating greater than or equal to the battery's rated amp-hour capacity.

WARNING

Do not allow battery acid to contact skin or clothing. Contact of skin with battery acid liquid or inhalation of battery acid mist can cause severe burns, respiratory tract infection, and chronic bronchitis. If any battery acid liquid or mist contacts skin or eyes, immediately flush affected areas thoroughly with water. If vapors are inhaled, go to fresh air. Seek medical help immediately. Failure to observe this warning could result in severe personal injury or death.

NOTE

The constant voltage charger should have a rating no less than the battery's amp-hour rating.

2. Follow all the safety instructions provided with battery charger, and wear safety goggles to protect your eyes from battery acid.

NOTE

Connect battery to charger and follow charging instructions.

3. How long to fully charge battery depends on its state of charge. A fully discharged battery requires 4 hours to recharge.

SERVICE – CONTINUED

4. If state of discharge is unknown, charge battery until current stabilizes. Then continue to charge battery for another hour.
5. If battery cannot be charged using the above procedure, use the procedure below.

Conditioning Charge of Electrolyte Battery**WARNING**

Do not allow battery acid to contact skin or clothing. Contact of skin with battery acid liquid or inhalation of battery acid mist can cause severe burns, respiratory tract infection, and chronic bronchitis. If any battery acid liquid or mist contacts skin or eyes, immediately flush affected areas thoroughly with water. If vapors are inhaled, go to fresh air. Seek medical help immediately. Failure to observe this warning could result in severe personal injury or death.

NOTE

To condition charge you need a constant current (CI) charger with at least twice the potential (50 V) of the battery being charged. The electrolyte battery is a 24 V battery, so the charge requires an output voltage of at least 50 V.

NOTE

Follow all safety instructions provided with battery charger, and wear safety goggles to protect your eyes from battery acid.

1. Set conditioning charger to 50 V and 1.3 Amps.

NOTE

Connect battery to charger and follow charging instructions.

2. Charge battery for 18 to 24 hours.
3. Battery voltage should increase to 30+ V at end of conditioning charge. This is normal.
4. If battery voltage does not measure 30+ V, then replace battery.

END OF TASK**REMOVE****WARNING**

- Battery acid can cause burns to unprotected skin. Wear safety goggles and chemical gloves and avoid acid splash while working on the batteries. Failure to comply with this warning can cause severe personal injury.
- Batteries give off flammable gas. Do not smoke or use open flame when performing maintenance. Flames and explosion could result in severe personal injury or death. Failure to observe this warning could result in severe personal injury or death.
- Do not allow battery acid to contact skin or clothing. Contact of skin with battery acid liquid or inhalation of battery acid mist can cause severe burns, respiratory tract infection, and chronic bronchitis. If any battery acid liquid or mist contacts skin or

REMOVE – CONTINUED

eyes, immediately flush affected areas thoroughly with water. If vapors are inhaled, go to fresh air. Seek medical help immediately. Failure to observe this warning could result in severe personal injury or death.

- When disconnecting battery cables, always remove negative cable first and positive cable last. Connect cable ends to enclosure ground lugs to prevent contact. Failure to observe this warning could result in severe personal injury or death.

1. Unlock main access cover latches and lift cover to open.
2. Disconnect negative battery cable (Figure 1, Item 1) from negative (-) battery post (Figure 1, Item 2). Connect cable end to enclosure ground lug.
3. Disconnect positive battery cable (Figure 1, Item 1) from positive (+) battery post (Figure 1, Item 2). Connect cable end to enclosure ground lug.
4. Remove battery tie-down (Figure 1, Item 3) from hold-down rods (Figure 1, Item 4) by removing nuts (Figure 1, Item 5) and washers (Figure 1, Item 6).
5. Carefully remove battery (Figure 1, Item 7) from battery tray (Figure 1, Item 8). Remove battery tray.

END OF TASK**REPLACE****WARNING**

- Battery acid can cause burns to unprotected skin. Wear safety goggles and chemical gloves and avoid acid splash while working on the batteries. Failure to comply with this warning can cause severe personal injury.
- Batteries give off flammable gas. Do not smoke or use open flame when performing maintenance. Flames and explosion could result in severe personal injury or death. Failure to observe this warning could result in severe personal injury or death.
- Do not allow battery acid to contact skin or clothing. Contact of skin with battery acid liquid or inhalation of battery acid mist can cause severe burns, respiratory tract infection, and chronic bronchitis. If any battery acid liquid or mist contacts skin or eyes, immediately flush affected areas thoroughly with water. If vapors are inhaled, go to fresh air. Seek medical help immediately. Failure to observe this warning could result in severe personal injury or death.
- When disconnecting battery cables, always remove negative cable first and positive cable last. Connect cable ends to enclosure ground lugs to prevent contact. Failure to observe this warning could result in severe personal injury or death.

1. Replace battery tray (Figure 1, Item 8) and battery (Figure 1, Item 7).
2. Replace battery tie-down (Figure 1, Item 3) and secure to hold-down rods (Figure 1, Item 4) using nuts (Figure 1, Item 5) and washers (Figure 1, Item 6).

WARNING

When connecting battery cables, always connect positive cable first and negative cable last. Failure to observe this warning could result in severe personal injury or death.

3. Connect positive battery cable (Figure 1, Item 1) to positive (+) battery post (Figure 1, Item 2).
4. Connect negative battery cable (Figure 1, Item 1) to negative (-) battery post (Figure 1, Item 2).
5. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

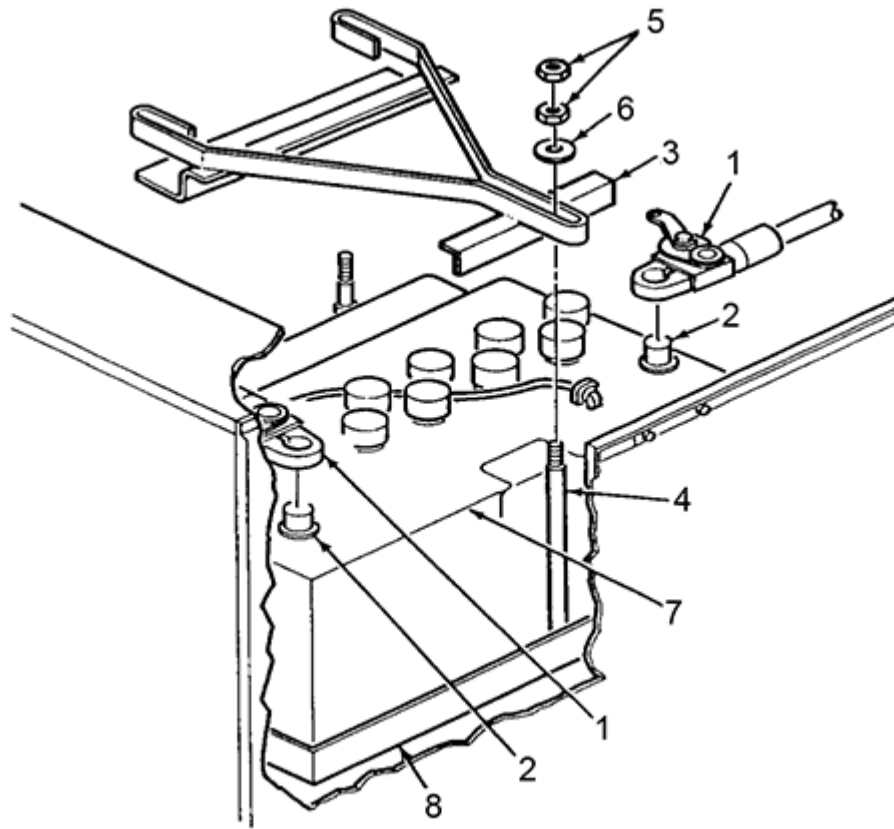


Figure 1. Battery System.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BATTERY CABLES: INSPECT, REMOVE, SERVICE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References - cont'd

WP 0136, Table 1, Item 9

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)

Battery cables disconnected (WP 0026)

Cable disconnected from NATO Slave Receptacle (WP 0066)

References

WP 0025

INSPECT

1. Inspect battery cables (Figure 1, Item 1) for corrosion, evidence of electrical short, and obvious damage. Check for cuts, tears, or exposed wires.
2. Inspect battery posts (Figure 1, Item 2) and crimp lugs (Figure 1, Item 6) for corrosion or damage. Check to see they are securely fastened. Inspect insulation sleeving for deterioration.
3. Inspect battery (WP 0025, Figure 1, Item 7) for cracks, corrosion, or evidence of leakage. Inspect battery posts (Figure 1, Item 2) for corrosion. Using a wire brush (WP 0133, Table 2, Item 5) remove corrosion from cable terminals and battery posts (Figure 1, Item 2).

END OF TASK**REMOVE**

1. Unlock main access cover latches and lift cover to open.

WARNING

- Batteries give off flammable gas. Do not smoke or use open flame when performing maintenance. Flames and explosion could result in severe personal injury or death. Failure to observe this warning could result in severe personal injury or death.
 - Do not allow battery acid to contact skin or clothing. Contact of skin with battery acid liquid or inhalation of battery acid mist can cause severe burns, respiratory tract infection, and chronic bronchitis. If any battery acid liquid or mist contacts skin or eyes, immediately flush affected areas thoroughly with water. If vapors are inhaled, go to fresh air. Seek medical help immediately. Failure to observe this warning could result in severe personal injury or death.
 - When disconnecting battery cables, always remove negative cable first and positive cable last. Connect cable ends to enclosure ground lugs to prevent contact. Failure to observe this warning could result in severe personal injury or death.
2. Disconnect negative battery cable (Figure 1, Item 6) from negative (-) battery post (Figure 1, Item 7). Disconnect opposite end of cable from engine ground lug by removing screw (Figure 1, Item 9), lockwasher (Figure 1, Item 10), and washer (Figure 1, Item 11). Leave electrical cable (Figure 1, Item 8) in place on ground lug.

REMOVE – CONTINUED

3. Disconnect positive battery cable (Figure 1, Item 1) from positive (+) battery post (Figure 1, Item 2). Disconnect opposite end of cable from starter's positive terminal (Figure 1, Item 3) by removing nut (Figure 1, Item 4) and washer (Figure 1, Item 5).

END OF TASK**SERVICE**

1. Once battery cables are disconnected, clean them. Using a wire brush (WP 0133, Table 2, Item 5) or a tool specifically designed for cleaning battery lug terminals, thoroughly clean cables to remove corrosion.
2. Clean battery (+) and (-) terminals so they are free of corrosion.

END OF TASK**REPLACE****NOTE**

Prior to replacing battery cables, coat them with general-purpose grease (WP 0136, Table 1) to prevent buildup of corrosion.

1. Ensure battery is secure in battery tray. Tighten hold-down rods, as required.

WARNING

When connecting battery cables, always connect positive cable first and negative cable last. Failure to observe this warning could result in severe personal injury or death.

CAUTION

After the following step is performed be sure to cover the connection point of the positive terminal of the starter with NSN: 8040-00-117-8510. Failure to comply may cause damage to the generator set and/or injury to soldiers.

2. Connect positive battery cable (Figure 1, Item 1) to positive terminal of the starter (Figure 1, Item 3) using nut (Figure 1, Item 4) and washer (Figure 1, Item 5). Connect opposite end of cable to positive (+) battery post (Figure 1, Item 2).
3. Connect negative battery cable (Figure 1, Item 6) and cable (Figure 1, Item 8) to engine ground lug using screw (Figure 1, Item 9), lockwasher (Figure 1, Item 10), and washer (Figure 1, Item 11). Connect opposite end of cable (Figure 1, Item 6) to negative (-) post (Figure 1, Item 7) of battery.
4. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

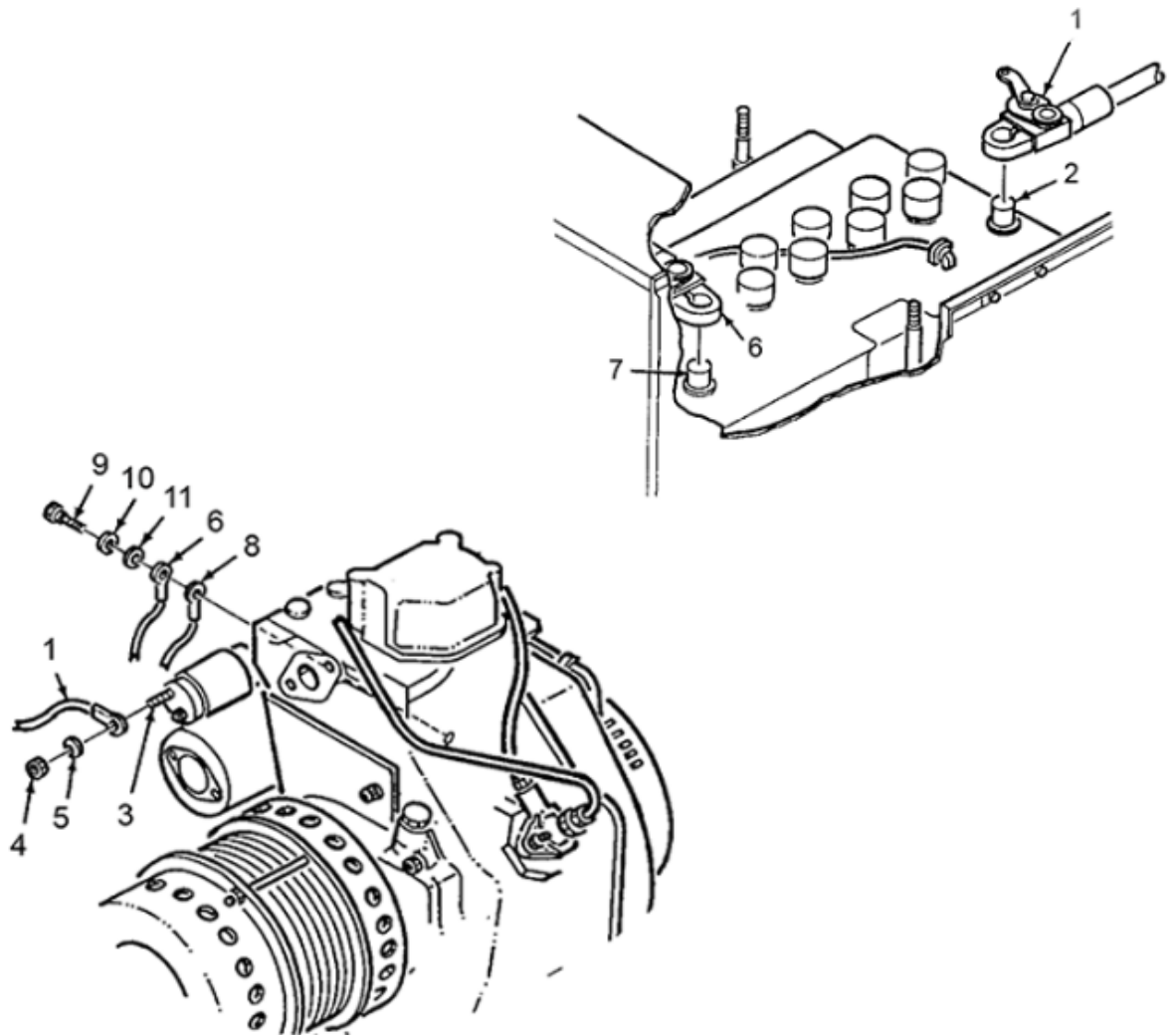


Figure 1. Battery Cable Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CONTACTOR ASSEMBLY: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

NOTE

There are two different contactor configurations. If you remove and replace the old contactor with the new contactor, follow the Configuration A procedures shown below, making sure you keep the old bracket and top cover. If you install a new contactor, follow the Configuration B procedures shown below.

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect contactor (Figure 1, Item 4) for corrosion, evidence of electrical short, and obvious damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE****Configuration A:**

1. Remove protective plate (Figure 1, Item 1) from bracket (Figure 1, Item 9) by removing screws (Figure 1, Item 2) and lockwashers (Figure 1, Item 3).
2. Tag and disconnect electrical wiring from AC circuit interrupter contactor K1 (Figure 1, Item 4).
3. Remove contactor K1 (Figure 1, Item 4) and bracket (Figure 1, Item 9) from back of control box by removing screw and captive washer assemblies (Figure 1, Item 5) and washers (Figure 1, Item 6).
4. Remove microswitch (Figure 1, Item 8) from contactor K1 (Figure 1, Item 4) by removing screw and captive washer assemblies (Figure 1, Item 7).

Configuration B:

1. Remove protective plate (Figure 1, Item 1) by removing screws (Figure 1, Item 2) and lockwashers (Figure 1, Item 3).
2. Tag and disconnect electrical wiring from AC circuit interrupter contactor K1 (Figure 1, Item 4).
3. Remove contactor K1 (Figure 1, Item 4) from back of control box by removing screw and captive washer assemblies (Figure 1, Item 5) and washers (Figure 1, Item 6).

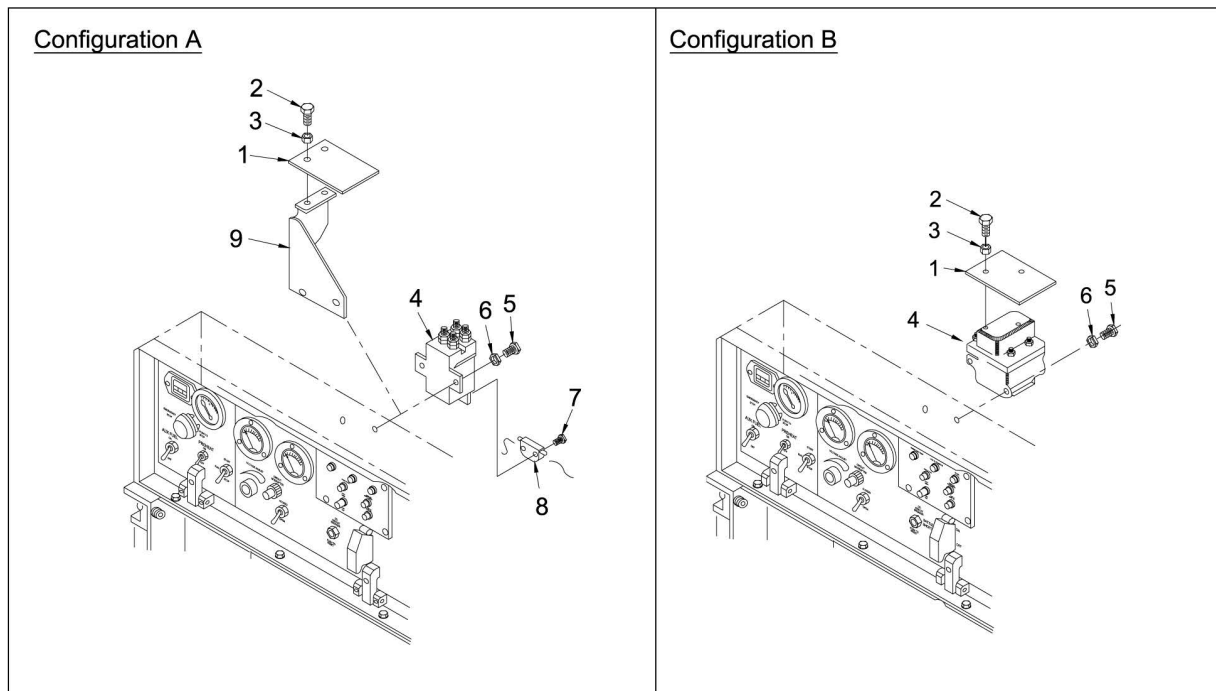
END OF TASK

REPLACE**Configuration A:**

1. Replace microswitch (Figure 1, Item 8) onto AC circuit interrupter contactor K1 (Figure 1, Item 4) using screw and captive washer assemblies (Figure 1, Item 7).
2. Install contactor K1 (Figure 1, Item 4) and bracket (Figure 1, Item 9) to back of control box. Secure using screw and captive washer assemblies (Figure 1, Item 5) and washers (Figure 1, Item 6).
3. Connect electrical wiring to contactor K1 (Figure 1, Item 4).
4. Replace protective plate (Figure 1, Item 1) onto bracket (Figure 1, Item 9) using screws (Figure 1, Item 2) and lockwashers (Figure 1, Item 3).
5. Close main access cover and lock in place using latches.

Configuration B:

1. Install contactor K1 (Figure 1, Item 4) to back of control box. Secure using screw and captive washer assemblies (Figure 1, Item 5) and washers (Figure 1, Item 6).
2. Connect electrical wiring to contactor K1 (Figure 1, Item 4).
3. Replace protective plate (Figure 1, Item 1) onto contactor K1 (Figure 1, Item 4) using screws (Figure 1, Item 2) and lockwashers (Figure 1, Item 3).
4. Close main access cover and lock in place using latches.

**Figure 1. Contactor Assembly.****END OF TASK****END OF WORK PACKAGE**

FIELD MAINTENANCE**FREQUENCY CONVERTER (A8): INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

References

WP 0022
WP 0027

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)
AC circuit interrupter contactor removed (WP 0027)

Drawings Required

Generator Set Electrical Schematic (FO-1)

CAUTION

After power washing generator set, allow it to dry out thoroughly. DO NOT START GENERATOR SET UNLESS IT HAS COMPLETELY DRIED AFTER WASHING.

INSPECT

1. Open main access cover.
2. Inspect Frequency Converter (A8) (Figure 1, Item 5) for obvious damage. Inspect for corrosion and evidence of electrical short. Check air ducts for clogs or obstructions. Clear obstructions.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.

END OF TASK**TEST**

1. Test output of Permanent Magnet Alternator (PMA) at P15 and P16 in accordance with TEST section in WP 0022.
2. Measure voltage at Frequency Converter (A8) output terminal as follows:
 - a. Set VOLTAGE SELECTION switch (on top of A8) to 120/240 V.
 - b. Start generator set.
 - c. Connect multimeter to load terminal L1-N.
 - d. Check voltage reading. Reading should be 120 VAC.
 - e. Connect multimeter to load terminal L2-N.
 - f. Check voltage reading. Reading should be 120 VAC.
 - g. Connect multimeter to terminal L1-L2.

TEST – CONTINUED

- h. Check voltage reading. Reading should be 240 VAC if in 120/120 V connection configuration or 0 VAC if in 120 V connection configuration.
- i. Reconnect J15 and J16 (See FO-1) to Frequency Converter (A8). Start generator set. Let it run for 1 minute. Leave SELECTOR switch door open. This checks the input side of the Frequency Converter (A8).
- j. Shut down generator set and set VOLTAGE SELECTOR switch to 120/240. Close VOLTAGE SELECTOR switch door.
- k. Start generator set. Adjust voltage reading on set meter to 240 V.
- l. Measure voltage output at Frequency Converter (A8) output terminals.
- m. Fine-tune voltage adjustment so reading between load terminals L1 and L2 is between 240 and 241 VAC. L1-N and L2-N should be balanced at 120 VAC within .7 VAC of each other.

END OF TASK**REMOVE****WARNING**

Shutdown generator (WP 0005). Disconnect battery cables (WP 0026). Disconnect cable for NATO slave receptacle (WP 0066).

1. Tag and disconnect three electrical connectors from Frequency Converter (A8) (Figure 1, Item 5). Remove two wire clamps (Figure 1, Item 24) by removing screws (Figure 1, Item 25).
2. Remove wire cover plate (Figure 1, Item 1) from Frequency Converter (A8) (Figure 1, Item 5) by removing four screw and captive washer assemblies (Figure 1, Item 2). Tag and disconnect electrical wires (Figure 1, Item 4) by loosening screws (Figure 1, Item 3). Reinstall screws and cover plate to prevent loss.
3. To prevent damage, tag and disconnect electrical harness connector J7 from rear of control box.
4. Remove two screws holding K1 relay and bracket in place to allow easy access to Frequency Converter (A8) for removal.
5. Detach Frequency Converter (A8) (Figure 1, Item 5) from bracket (Figure 1, Item 9) by removing two screws (Figure 1, Item 10), lockwashers (Figure 1, Item 11), and washers (Figure 1, Item 12).
6. Release Frequency Converter (A8) (Figure 1, Item 5) from rear wall of enclosure (Figure 1, Item 13) by removing six screws (Figure 1, Item 14), lockwashers (Figure 1, Item 15), and washers (Figure 1, Item 16).
7. Remove bracket (Figure 1, Item 17) from skid base by removing four screws (Figure 1, Item 18), lockwashers (Figure 1, Item 19), and washers (Figure 1, Item 20).
8. Remove bracket (Figure 1, Item 17) from Frequency Converter (A8) (Figure 1, Item 5) by removing two screws (Figure 1, Item 21), lockwashers (Figure 1, Item 22), and washers (Figure 1, Item 23).
9. Carefully lift Frequency Converter (A8) (Figure 1, Item 5) up and out of generator set enclosure.

END OF TASK**REPLACE**

1. Replace bracket (Figure 1, Item 17) onto Frequency Converter (A8) (Figure 1, Item 5) using two screws (Figure 1, Item 21), lockwashers (Figure 1, Item 22), and washers (Figure 1, Item 23). Carefully replace Frequency Converter (A8) (Figure 1, Item 5) into generator set.

REPLACE – CONTINUED

2. Secure bracket to skid base using four screws (Figure 1, Item 18), lockwashers (Figure 1, Item 19), and washers (Figure 1, Item 20).
3. Install Frequency Converter (A8) (Figure 1, Item 5) to rear wall of enclosure (Figure 1, Item 13). Secure using six screws (Figure 1, Item 14), lockwashers (Figure 1, Item 15), and washers (Figure 1, Item 16).
4. Attach Frequency Converter (A8) (Figure 1, Item 5) to bracket (Figure 1, Item 9) using two screws (Figure 1, Item 10), lockwashers (Figure 1, Item 11), and washers (Figure 1, Item 12).
5. Secure control box to bracket (Figure 1, Item 9) using two screws (Figure 1, Item 6), lockwashers (Figure 1, Item 7), and washers (Figure 1, Item 8).
6. Connect electrical harness connector J7 to rear of control box. Connect three electrical connectors to Frequency Converter (A8) (Figure 1, Item 5).
7. Connect electrical wires (Figure 1, Item 4) using screws (Figure 1, Item 3). Replace cover plate (Figure 1, Item 1) using four screw and captive washer assemblies (Figure 1, Item 2).
8. Secure two wire clamps (Figure 1, Item 24) to Frequency Converter (A8) (Figure 1, Item 5) using screws (Figure 1, Item 25).
9. Replace AC circuit interrupter contactors (WP 0027).
10. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

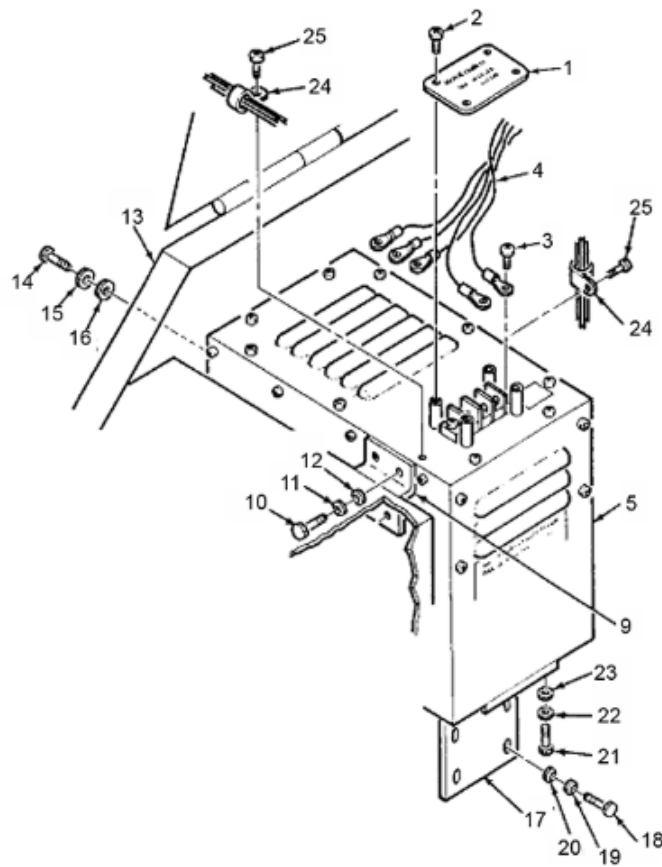


Figure 1. Frequency Converter (A8) Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**RELAYS, ELECTROMAGNETIC: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect DC magnetic contactors (Figure 1, Item 7) for obvious damage. Inspect for corrosion and evidence of electrical short.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.

END OF TASK**REMOVE**

1. Unlock main access cover latches and lift cover to open.
2. Remove two DC magnetic contactors (Figure 1, Item 7) from wall of enclosure (Figure 1, Item 8) by removing screws (Figure 1, Item 9), washers (Figure 1, Item 10), and locknuts (Figure 1, Item 11).
3. Tag and disconnect electrical wires (Figure 1, Items 1 and 2) from DC magnetic contactors (Figure 1, Item 7) by removing nuts (Figure 1, Items 3 and 5) and washers (Figure 1, Items 4 and 6). Remove voltage suppressors (Figure 1, Item 12).

END OF TASK**REPLACE**

1. Connect electrical wires (Figure 1, Items 1 and 2) and voltage suppressors (Figure 1, Item 12) to DC magnetic contactors (Figure 1, Item 7) using nuts (Figure 1, Items 3 and 5) and washers (Figure 1, Items 4 and 6).
2. Install two DC magnetic contactors (Figure 1, Item 7) to rear wall of enclosure (Figure 1, Item 8). Secure using screws (Figure 1, Item 9), washers (Figure 1, Item 10), and locknuts (Figure 1, Item 11).
3. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

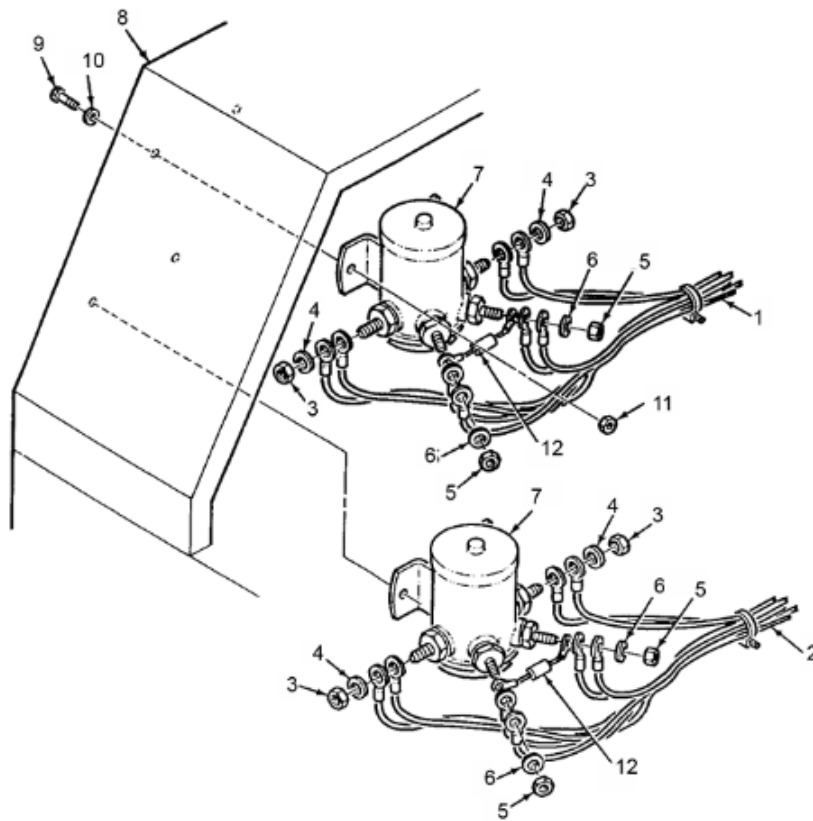


Figure 1. Relays, Electromagnetic.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CONTROL BOX ASSEMBLY: INSPECT, TEST, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Multimeter (WP 0133, Table 2, Item 1)

References - cont'd

WP 0045
WP 0046

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery charging regulator removed (WP 0024)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

References

WP 0024
WP 0030

INSPECT

1. Inspect controls and indicators for corrosion and obvious damage (Figure 1). Inspect meters for broken glass.
2. Turn quarter-turn fasteners to unlock and open control panel.
3. Inspect external relays and terminal boards for evidence of electrical short. Check for loose wires and connectors. Inspect for electrical burn marks, corrosion, and damage.
4. Inspect connector J7 (Figure 1, Item 37) for damaged pin receptacles. Check for corrosion. Ensure connector is securely attached to rear of control panel.
5. Inspect control panel gaskets for cuts, tears, deterioration, or other damage. Inspect gasket on rear of housing where left-side panel mounts. Ensure gaskets are securely attached. Replace as required.

END OF TASK**TEST**

1. Using multimeter perform continuity test between J7 and P7.

END OF TASK**REMOVE**

1. Remove rear panel (Figure 1, Item 1) by removing screws (Figure 1, Item 2), lockwashers (Figure 1, Item 3), and washers (Figure 1, Item 4).
2. Remove left-side panel (Figure 1, Item 5) by removing screws (Figure 1, Item 6), washers (Figure 1, Item 7), and locknuts (Figure 1, Item 8).
3. Remove screws (Figure 1, Item 9), screws (Figure 1, Item 12), washers (Figure 1, Item 10), and locknuts (Figure 1, Item 11).

REMOVE – CONTINUED

4. Remove screws (Figure 1, Item 13), washers (Figure 1, Item 14), locknuts (Figure 1, Item 15), and spacer (Figure 1, Item 16) from left-side cover-support mounting bracket (Figure 1, Item 17). Fold support up to gain clearance for control box.
5. Remove convenience receptacle (WP 0045).
6. Remove Ground Fault Circuit Interrupter (GFCI) (WP 0046).
7. Disconnect and tag wires from terminal boards (TB4) and (TB6), contactor (K1), and fuse (FU1) located on rear of control box (Figure 1, Item 24). Disconnect J7 connector.
8. Remove screws (Figure 1, Item 18), washers (Figure 1, Item 19), and locknuts (Figure 1, Item 20) from right-side panel (Figure 1, Item 21).
9. Remove screws (Figure 1, Item 22), washers (Figure 1, Item 23), and locknuts (Figure 1, Item 20) from control box (Figure 1, Item 24).
10. Remove screws (Figure 1, Item 25), lockwashers (Figure 1, Item 26), and washers (Figure 1, Item 27) from bracket (Figure 1, Item 28).
11. Remove screws (Figure 1, Item 29), washers (Figure 1, Item 30), locknuts (Figure 1, Item 31), and load wrench (Figure 1, Item 32).
12. Remove screw (Figure 1, Item 33), washer (Figure 1, Item 34), and locknut (Figure 1, Item 35).
13. Slide control box (Figure 1, Item 24) out of enclosure. Remove shim (Figure 1, Item 36).

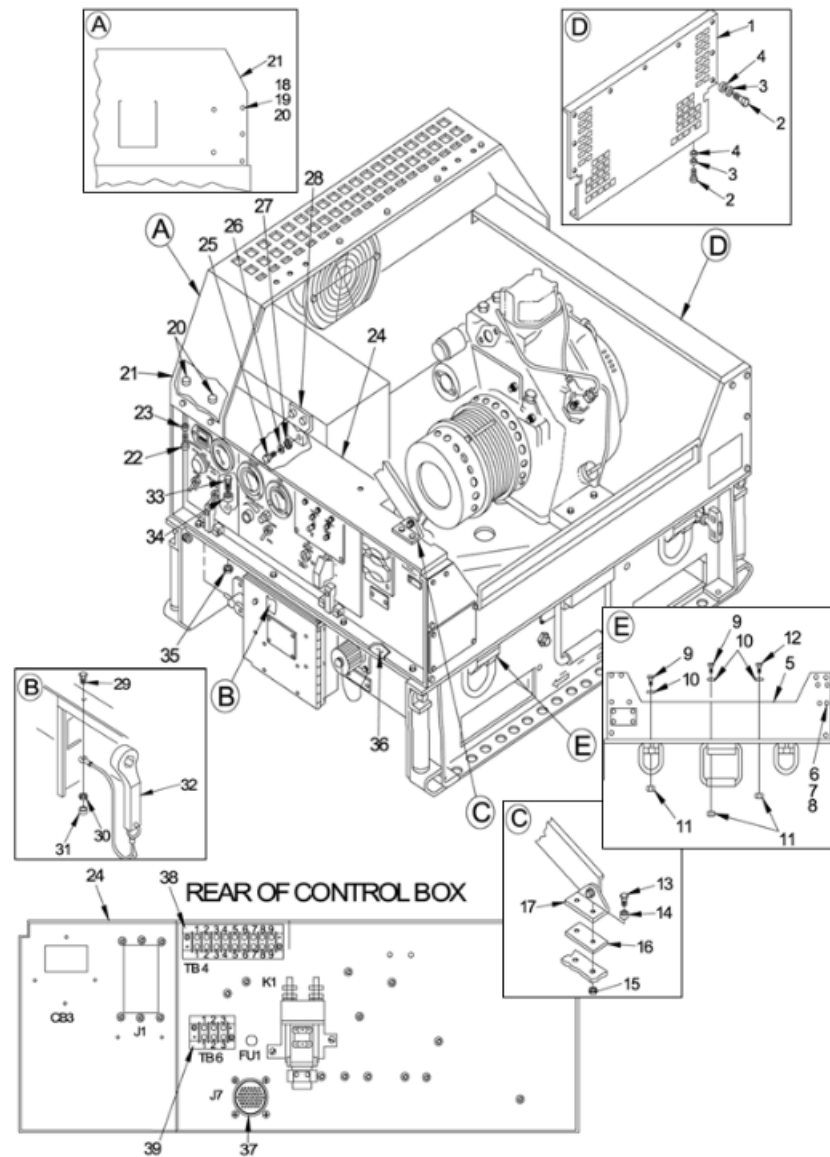
END OF TASK**REPLACE****NOTE**

Replace control box attaching parts. Tighten once control box is properly aligned and all components are attached.

1. Replace control box (WP 0030, Figure 1, Item 24) and shim (Figure 1, Item 36) into enclosure.
2. Replace screw (Figure 1, Item 33), washer (Figure 1, Item 34), and locknut (Figure 1, Item 35).
3. Replace screws (Figure 1, Item 29), washers (Figure 1, Item 30), locknuts (Figure 1, Item 31), and load wrench (Figure 1, Item 32).
4. Replace screws (Figure 1, Item 25), lockwashers (Figure 1, Item 26), and washers (Figure 1, Item 27) onto bracket (Figure 1, Item 28).
5. Replace screws (Figure 1, Item 22), washers (Figure 1, Item 23), and locknuts (Figure 1, Item 20).
6. Replace screws (Figure 1, Item 18), washers (Figure 1, Item 19), and locknuts (Figure 1, Item 20) into right side panel (Figure 1, Item 21).
7. Connect electrical wires to terminal boards TB4 (Figure 1, Item 38) and TB6 (Figure 1, Item 39), contactor (K1), and fuse (FU1) located on rear of control box (Figure 1, Item 24). Connect connector J7 (Figure 1, Item 37).
8. Replace GFCI (WP 0046).
9. Replace convenience receptacle (WP 0045).
10. Replace screws (Figure 1, Item 13), washers (Figure 1, Item 14), locknuts (Figure 1, Item 15), and spacer (Figure 1, Item 16) on left-side cover-support mounting bracket (Figure 1, Item 17).
11. Replace left-side panel (Figure 1, Item 5) using screws (Figure 1, Item 6), washers (Figure 1, Item 7), and locknuts (Figure 1, Item 8). Replace screws (Figure 1, Item 9), screws (Figure 1, Item 12), washers (Figure 1, Item 10), and locknuts.

REPLACE – CONTINUED

12. Replace rear panel (Figure 1, Item 1) using screws (Figure 1, Item 2), washers (Figure 1, Item 3), and lock-washers (Figure 1, Item 4).
13. Replace battery-charging regulator (WP 0024).
14. Close main access cover.

**Figure 1. Control Box Assembly.****END OF TASK****END OF WORK PACKAGE**

FIELD MAINTENANCE**CONTROL PANEL ASSEMBLY: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0043

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)

Battery cables disconnected (WP 0026)

Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Inspect controls and indicators for corrosion and obvious damage. Inspect meters for broken glass (Figure 1 to WP 0043, Figure 1).
2. Inspect for evidence of electrical short, electrical burn marks, corrosion, and damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached. Check for bent, broken, or missing pins.
4. Inspect control panel gaskets for cuts, tears, deterioration, or other damage. Inspect gasket on rear housing where left-side panel mounts. Ensure gasket is securely attached. Replace as required.

END OF TASK**REMOVE****NOTE**

It is not necessary to remove the control panel to remove control panel components.
See specific tasks to remove control panel components.

1. Turn quarter-turn fasteners (Figure 1, Item 1) to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from rear of control panel components.
3. Release cable lanyard (Figure 1, Item 3) from control panel (Figure 1, Item 1) by removing attaching screw (Figure 1, Item 4), washer (Figure 1, Item 5), and locknut (Figure 1, Item 6).
4. Remove control panel hinges (Figure 1, Item 7) and hinge spacers (Figure 1, Item 8) from control box by removing four nuts (Figure 1, Item 9).
5. Remove hinges (Figure 1, Item 7) from control panel (Figure 1, Item 2) by removing two nuts (Figure 1, Item 9).

END OF TASK**REPLACE**

1. Attach two hinges (Figure 1, Item 7) to control panel (Figure 1, Item 2) using two nuts (Figure 1, Item 9).

REPLACE – CONTINUED

2. Replace hinge spacers (Figure 1, Item 8) onto hinges (Figure 1, Item 7). Install hinges to control box and secure using four nuts (Figure 1, Item 9).
3. Connect cable lanyard (Figure 1, Item 3) to control panel (Figure 1, Item 2) using attaching screw (Figure 1, Item 4), washer (Figure 1, Item 5), and locknut (Figure 1, Item 6).
4. Connect electrical wires to rear of control panel components.
5. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).

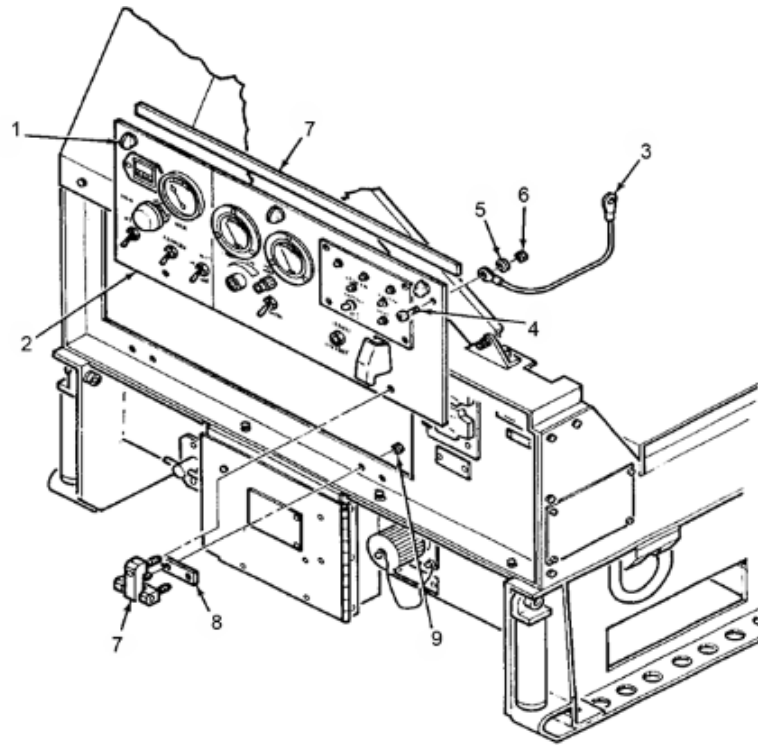


Figure 1. Control Panel Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PANEL, METERS, GAUGES, AND SWITCHES: INSPECT AND REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

References - cont'd

WP 0040
WP 0041
WP 0042
WP 0043
WP 0044
WP 0131

References

WP 0033
WP 0034
WP 0035
WP 0036
WP 0037
WP 0038
WP 0039

Equipment Condition

Generator set shut down (WP 0005)
Battery charging regulator removed (WP 0024)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. In addition to scheduled inspections, panel meters, gauges, and switches and their components must be inspected. Inspection results must be documented on the Equipment Inspection and Maintenance Worksheet, DA Form 2404 (WP 0131), and/or DD Form 5988-E (WP 0131), in accordance with DA PAM 750-8 (WP 0131). Be sure to describe damage in detail.

WARNING

Do not replace components or make adjustments with the voltage supply turned on. Dangerous potentials may exist under certain conditions when the power control is off. Avoid casualties by always removing power and by discharging and grounding a circuit before touching it. Failure to observe this warning could result in severe personal injury or death.

2. Inspect grounding system to see that ground rods make secure contact with the earth; wet area around each ground rod, if necessary.
3. Inspect ground binding. Ensure good electrical contact is made at ground rod.
4. Check for loose, damaged, corroded, or missing mounting hardware. Ensure all electronic mounted components are securely attached.
5. Inspect complete assembly for dirt, grease, rust, fungus, and corrosion.

END OF TASK**REPLACE**

1. Installation is limited to the following components:
 - HOURS meter (see WP 0033).

REPLACE – CONTINUED

- FUEL-LEVEL gauge (see WP 0034)
- VOLTAGE meter (see WP 0035).
- LOAD meter (see WP 0036).
- Fault Indicator module (see WP 0037).
- Operator switches (see WP 0038).
- EMERGENCY STOP button (see WP 0039).
- DC CIRCUIT BREAKER switch (see WP 0040).
- CIRCUIT INTERRUPTER indicator light (see WP 0041).
- VOLTAGE ADJUST rheostat (see WP 0042).
- Relays (see WP 0043).
- Fuses, diodes, and terminal block (see WP 0044).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**HOURS METER: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery charging regulator removed (WP 0024)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Inspect HOURS meter (Figure 1, Item 3) for corrosion and obvious damage. Inspect for broken glass.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners (Figure 1, Item 1) to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from rear of HOURS meter (Figure 1, Item 3).
3. Remove HOURS meter (Figure 1, Item 3) from control panel (Figure 1, Item 2) by removing screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and nuts (Figure 1, Item 6).

END OF TASK**REPLACE**

1. Install HOURS meter (Figure 1, Item 3) to control panel (Figure 1, Item 2). Secure using two screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and nuts (Figure 1, Item 6).
2. Connect electrical wiring to rear of HOURS meter (Figure 1, Item 3).
3. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).

REPLACE – CONTINUED

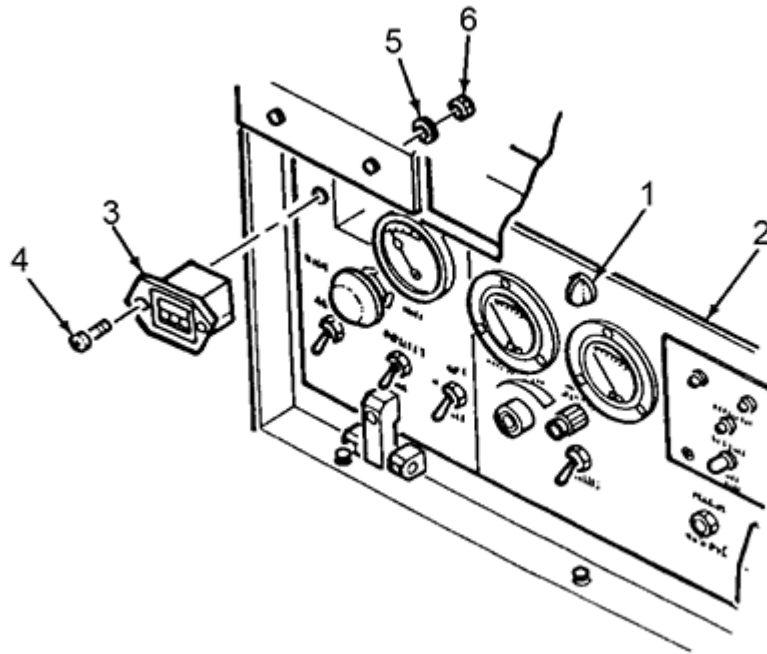


Figure 1. HOURS Meter.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**FUEL-LEVEL GAUGE METER: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery charging regulator removed (WP 0024)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Inspect FUEL LEVEL gauge (Figure 1, Item 3) for corrosion and obvious damage. Inspect for broken glass.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners (Figure 1, Item 1) to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from rear of FUEL LEVEL gauge (Figure 1, Item 3).
3. Remove FUEL LEVEL gauge (Figure 1, Item 3) from control panel (Figure 1, Item 2) by removing nuts (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and bracket (Figure 1, Item 6).

END OF TASK**REPLACE**

1. Replace FUEL LEVEL gauge (Figure 1, Item 3) onto control panel (Figure 1, Item 2) using nuts (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and bracket (Figure 1, Item 6).
2. Connect electrical wiring to rear of FUEL LEVEL gauge (Figure 1, Item 3).
3. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).

REPLACE – CONTINUED

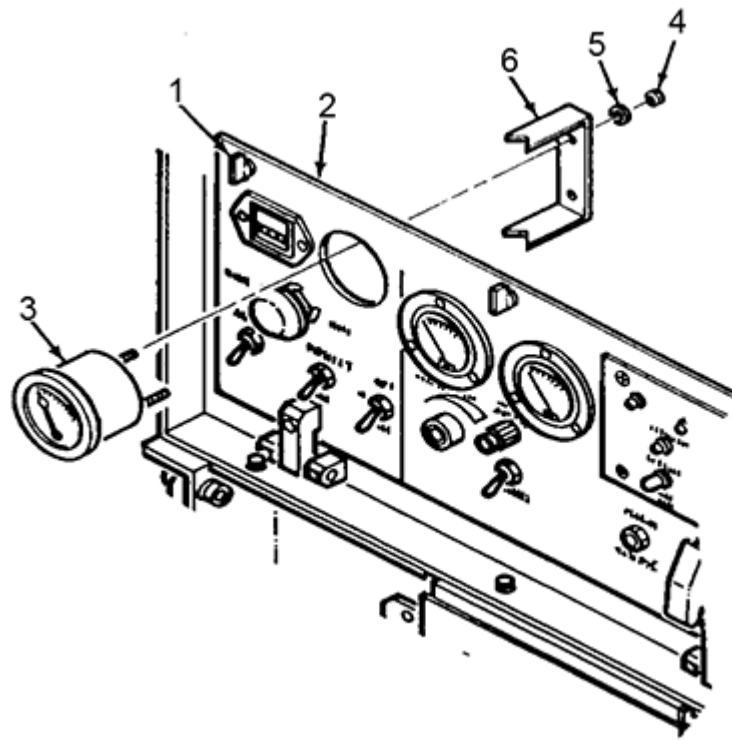


Figure 1. FUEL LEVEL Gauge.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**VOLTAGE METER: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery charging regulator removed (WP 0024)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Inspect VOLTAGE meter (Figure 1, Item 3) for corrosion and obvious damage. Inspect for broken glass.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners (Figure 1, Item 1) to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from rear of VOLTAGE meter (Figure 1, Item 3).
3. Remove VOLTAGE meter (Figure 1, Item 3) from control panel (Figure 1, Item 2) by removing screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and nuts (Figure 1, Item 6).

END OF TASK**REPLACE**

1. Install VOLTAGE meter (Figure 1, Item 3) to control panel (Figure 1, Item 2). Secure using screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and nuts (Figure 1, Item 6).
2. Connect electrical wiring to rear of VOLTAGE meter (Figure 1, Item 3).
3. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).

REPLACE – CONTINUED

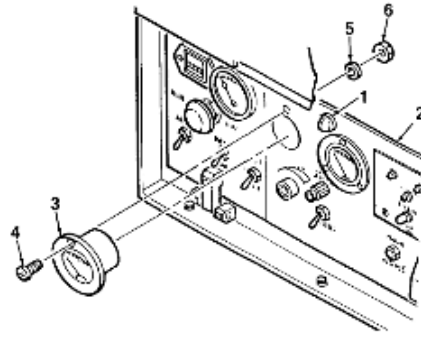


Figure 1. VOLTAGE Meter.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**LOAD METER: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery charging regulator removed (WP 0024)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Inspect LOAD meter (Figure 1, Item 3) for corrosion and obvious damage. Inspect for broken glass.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners (Figure 1, Item 1) to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from the rear of LOAD meter (Figure 1, Item 3).
3. Remove LOAD meter (Figure 1, Item 3) from control panel (Figure 1, Item 2) by removing screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and nuts (Figure 1, Item 6).

END OF TASK**REPLACE**

1. Install LOAD meter (Figure 1, Item 3) to control panel (Figure 1, Item 2). Secure using screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and nuts (Figure 1, Item 6).
2. Connect electrical wiring to rear of LOAD meter (Figure 1, Item 3).
3. Connect electrical wiring to rear of LOAD meter (Figure 1, Item 3).

REPLACE – CONTINUED

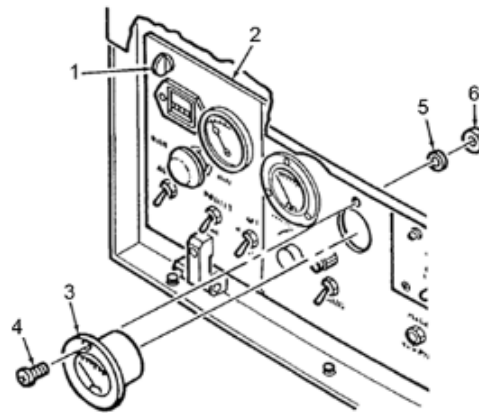


Figure 1. LOAD Meter.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FAULT INDICATOR MODULE: INSPECT, TEST, REMOVE, REPLACE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Multimeter (WP 0133, Table 2, Item 1)

Equipment Condition

Generator set shut down (WP 0005)
Battery charging regulator removed (WP 0024)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect fault indicator module (Figure 1, Item 3) for corrosion and obvious damage. Inspect for broken indicator lights.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK

TEST

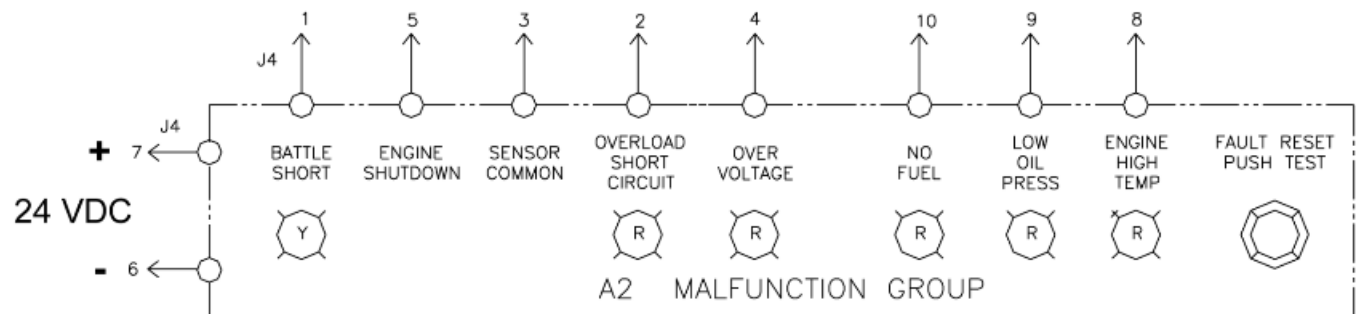


Figure 1. 24 VDC.

1. Apply 24 VDC to pins 7(+) and 6(-) of fault indicator module.
2. Press FAULT RESET button on fault indicator module. All indicators should illuminate.
3. Connect jumper between pins 1 and 6 of fault indicator module. BATTLE SHORT indicator should illuminate. Remove jumper. Press RESET button on fault indicator module to turn off indicator.
4. Connect jumper between pins 7 and 10 of fault indicator module. NO FUEL indicator should illuminate. Voltage between pins 7(+) and 5(-) should read 24 VDC. Remove jumper. Press RESET button on fault indicator module to turn off indicator.
5. Connect jumper between pins 7 and 9 of fault indicator module. LOW OIL PRESSURE indicator should illuminate. Voltage between pins 7(+) and 5(-) should read 24 VDC. Remove jumper. Press RESET button on fault indicator module to turn off indicator.

TEST – CONTINUED

6. Connect jumper between pins 7 and 8 of fault indicator module. ENGINE HIGH TEMP indicator should illuminate. Voltage between pins 7(+) and 5(-) should read 24 VDC. Remove jumper. Press RESET button on Fault Indicator Module to turn off indicator.
7. Connect jumper between pins 7 and 4 of fault indicator module. OVERVOLTAGE indicator should illuminate. Voltage between pins 7(+) and 5(-) should read 24 VDC. Remove jumper. Press RESET button on Fault Indicator Module to turn off indicator.
8. Connect jumper between pins 7 and 2 of fault indicator module. OVERLOAD SHORT CIRCUIT indicator should illuminate. Remove jumper. Press RESET button on Fault Indicator Module to turn off indicator.
9. Disconnect 24 VDC connected to pins 7 and 6.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners (Figure 1, Item 1) to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from rear of fault indicator module (Figure 1, Item 3).
3. Remove fault indicator module (Figure 1, Item 3) from control panel (Figure 1, Item 2) by removing screws (Figure 1, Item 4), washers (Figure 1, Item 5), and locknuts (Figure 1, Item 6).

END OF TASK**REPLACE**

1. Install fault indicator module (Figure 1, Item 3) to control panel (Figure 1, Item 2). Secure using screws (Figure 1, Item 4), washers (Figure 1, Item 5), and locknuts (Figure 1, Item 6).
2. Connect electrical wiring to rear of fault indicator module (Figure 1, Item 3).
3. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).

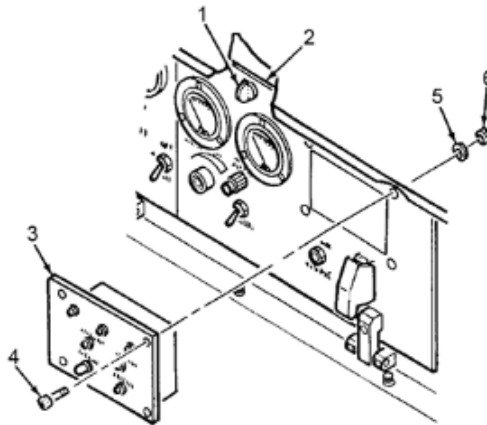


Figure 2. Fault Indicator Module.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**OPERATOR SWITCHES: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

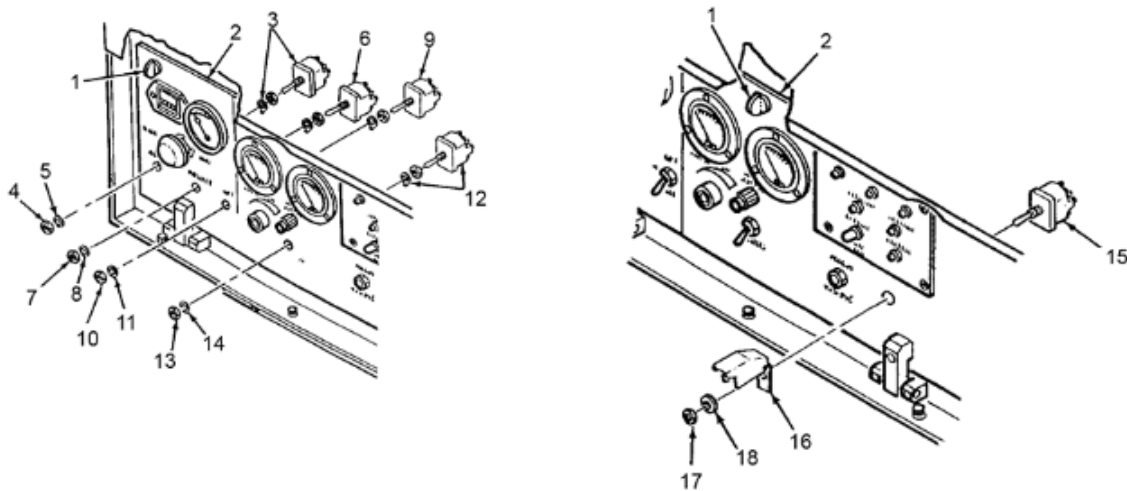
Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect switches (Figure 1, Items 3, 6, 9, 12, and 15) for obvious damage. Check for corrosion or evidence of electrical short.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from rear of operator switches (Figure 1, Items 3, 6, 9, 12, and 15), as required.
3. Remove AUX FUEL switch (Figure 1, Item 3) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 4) and lockwasher (Figure 1, Item 5).
4. Remove PREHEAT switch (Figure 1, Item 6) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 7) and lockwasher (Figure 1, Item 8).
5. Remove START/RUN/STOP switch (Figure 1, Item 9) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 10) and lockwasher (Figure 1, Item 11).
6. Remove CIRCUIT INTERRUPTER switch (Figure 1, Item 12) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 13) and lockwasher (Figure 1, Item 14).
7. Remove BATTLE SHORT switch (Figure 1, Item 15) and switch guard (Figure 1, Item 16) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 17) and lockwasher (Figure 1, Item 18).

REMOVE – CONTINUED**Figure 1. Operator Switches.****END OF TASK****REPLACE**

1. Replace AUX FUEL switch (Figure 1, Item 3) onto control panel (Figure 1, Item 2) using attaching nut (Figure 1, Item 4) and lockwasher (Figure 1, Item 5).
2. Replace PREHEAT switch (Figure 1, Item 6) onto control panel (Figure 1, Item 2) using attaching nut (Figure 1, Item 7) and lockwasher (Figure 1, Item 8).
3. Replace START/RUN/STOP switch (Figure 1, Item 9) onto control panel (Figure 1, Item 2) using attaching nut (Figure 1, Item 10) and lockwasher (Figure 1, Item 11).
4. Replace CIRCUIT INTERRUPTER switch (Figure 1, Item 12) onto control panel (Figure 1, Item 2) using attaching nut (Figure 1, Item 13) and lockwasher (Figure 1, Item 14).
5. Remove BATTLE SHORT switch (Figure 1, Item 15) and switch guard (Figure 1, Item 16) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 17) and lockwasher (Figure 1, Item 18).
6. Connect electrical wiring to rear of switches (Figure 1, Items 3, 6, 9, 12, and 15).
7. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**EMERGENCY STOP BUTTON: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)
Crimping Tool (WP 0133, Table 2, Item 5)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect EMERGENCY STOP button (Figure 1, Item 3) for corrosion and obvious damage. Inspect electrical connectors for damage and evidence of short.
2. Depress switch shaft to check for proper operation. Switch must depress and reset smoothly.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from rear of EMERGENCY STOP button (Figure 1, Item 3).
3. Remove yellow locking tab (Figure 1, Item 4) from side of EMERGENCY STOP button (Figure 1, Item 3). Rotate lever (Figure 1, Item 5) on EMERGENCY STOP button to unlock position, and remove EMERGENCY STOP button from rear of control panel (Figure 1, Item 2).

NOTE

Observe orientation of push button (Figure 1, Item 6) before removing to aid in assembly.

4. Remove push button (Figure 1, Item 6) from control panel (Figure 1, Item 2) by removing locknut (Figure 1, Item 7) and gasket (Figure 1, Item 8).

END OF TASK**REPLACE**

1. Replace push button (Figure 1, Item 6) on control panel (Figure 1, Item 2) using locknut (Figure 1, Item 7) and gasket (Figure 1, Item 8).

REPLACE – CONTINUED

2. Replace EMERGENCY STOP button (Figure 1, Item 3) on rear of control panel (Figure 1, Item 2). Rotate lever (Figure 1, Item 5) to lock EMERGENCY STOP button in place. Replace locking tab (Figure 1, Item 4).
3. Connect electrical wiring to rear of EMERGENCY STOP button (Figure 1, Item 3).
4. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).

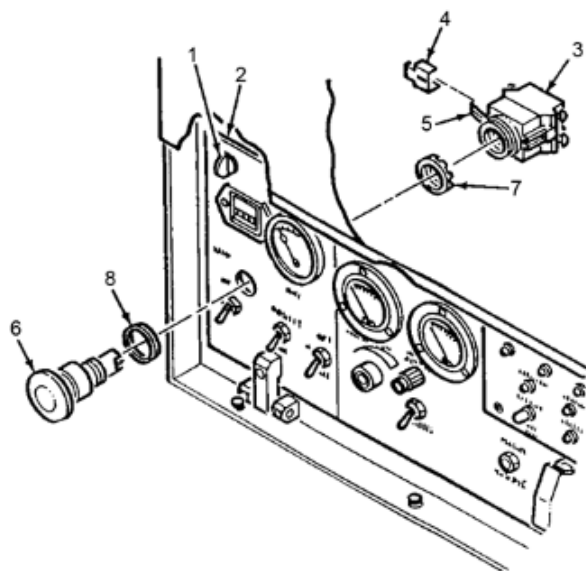


Figure 1. Emergency Stop Button.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**DC CIRCUIT BREAKER: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Inspect DC CIRCUIT BREAKER switch (Figure 1, Item 3) for corrosion and obvious damage.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners to unlock and open control panel (Figure 1, Item 2).
2. Tag and disconnect electrical wiring from rear of DC CIRCUIT BREAKER switch (Figure 1, Item 3).
3. Remove DC CIRCUIT BREAKER switch (Figure 1, Item 3) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 4) and lockwasher (Figure 1, Item 5).

END OF TASK**REPLACE**

1. Install DC CIRCUIT BREAKER switch (Figure 1, Item 3) to rear of control panel (Figure 1, Item 2). Secure using nut (Figure 1, Item 4) and lockwasher (Figure 1, Item 5).
2. Connect electrical wiring to rear of DC CIRCUIT BREAKER switch (Figure 1, Item 3).
3. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).

REPLACE – CONTINUED

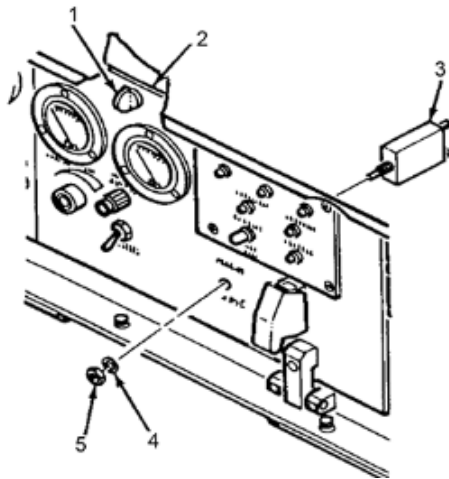


Figure 1. DC CIRCUIT BREAKER.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**CIRCUIT INTERRUPTER INDICATOR LIGHT: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Soldering Iron (WP 0133, Table 2, Item 5)
Heat Gun (WP 0133, Table 2, Item 5)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Materials/Parts

Solder, Tin Alloy (WP 0136, Table 1, Item 24)
Tubing, Heat Shrink (WP 0136, Table 1, Item 26)

INSPECT

1. Inspect CIRCUIT INTERRUPTER indicator light (Figure 1, Item 5) for corrosion and obvious damage.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners to unlock control panel (Figure 1, Item 2).
2. Replace CIRCUIT INTERRUPTER indicator light bulb (Figure 1, Item 3) by removing cap (Figure 1, Item 4) from CIRCUIT INTERRUPTER indicator light (Figure 1, Item 5). Unscrew bulb (Figure 1, Item 3) from light (Figure 1, Item 5).

CAUTION

Remove bulb (Figure 1, Item 3) from indicator light (Figure 1, Item 5) prior to soldering.

3. Peel back heat shrink tubing to expose electrical wires on rear of indicator light (Figure 1, Item 5). Using a soldering iron, detach electrical wires from rear of indicator light.
4. Remove CIRCUIT INTERRUPTER indicator light (Figure 1, Item 5) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 6) and lockwasher (Figure 1, Item 1).

END OF TASK**REPLACE**

1. Replace CIRCUIT INTERRUPTER indicator light (Figure 1, Item 5) onto control panel (Figure 1, Item 2) using attaching nut (Figure 1, Item 6) and lockwasher (Figure 1, Item 1).

CAUTION

Remove bulb (Figure 1, Item 3) from indicator light (Figure 1, Item 5) prior to soldering.

2. Connect electrical wiring to rear of indicator light (Figure 1, Item 5) and secure using soldering iron. Using a heat gun, adhere heat shrink tubing to wire connectors.

REPLACE – CONTINUED

3. Screw CIRCUIT INTERRUPTER indicator light bulb (Figure 1, Item 3) into indicator light (Figure 1, Item 5). Replace cap (Figure 1, Item 4).
4. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 7).

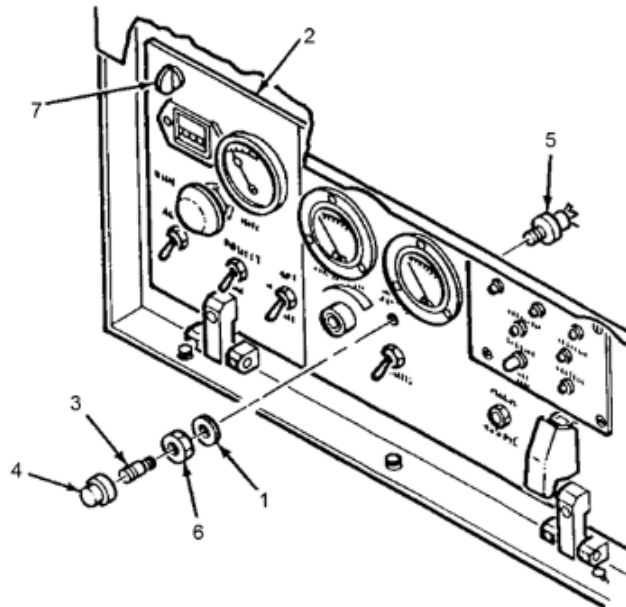


Figure 1. Circuit Interrupter Indicator Light.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VOLTAGE ADJUST RHEOSTAT: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
 Soldering Iron (WP 0133, Table 2, Item 5)
 Heat Gun (WP 0133, Table 2, Item 5)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Materials/Parts

Solder, Tin Alloy (WP 0136, Table 1, Item 24)
 Tubing, Heat Shrink (WP 0136, Table 1, Item 26)

INSPECT

1. Inspect VOLTAGE ADJUST rheostat (Figure 1, Item 3) for corrosion and obvious damage. Rotate VOLTAGE ADJUST rheostat shaft to ensure smooth operation.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Remove knob (Figure 1, Item 4) from shaft of VOLTAGE ADJUST rheostat (Figure 1, Item 3) by loosening setscrews (Figure 1, Item 5).
2. Turn quarter-turn fasteners (Figure 1, Item 1) to unlock and open control panel (Figure 1, Item 2).
3. Remove VOLTAGE ADJUST rheostat (Figure 1, Item 3) from control panel (Figure 1, Item 2) by removing attaching nut (Figure 1, Item 6) and lockwasher (Figure 1, Item 7).
4. Peel back heat shrink tubing to expose electrical wires on rear of VOLTAGE ADJUST rheostat (Figure 1, Item 3). Using a soldering iron, detach electrical wires from rear of rheostat.

END OF TASK**REPLACE**

1. Connect electrical wiring to rear of VOLTAGE ADJUST rheostat (Figure 1, Item 3) and secure using soldering iron. Cover connection with heat shrink tubing and secure using heat gun.
2. Install VOLTAGE ADJUST rheostat (Figure 1, Item 3) to rear of control panel (Figure 1, Item 2). Replace using lockwasher (Figure 1, Item 7) and nut (Figure 1, Item 6).
3. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 1).
4. Secure knob (Figure 1, Item 4) to shaft of VOLTAGE ADJUST rheostat (Figure 1, Item 3) by tightening setscrews (Figure 1, Item 5).

REPLACE – CONTINUED

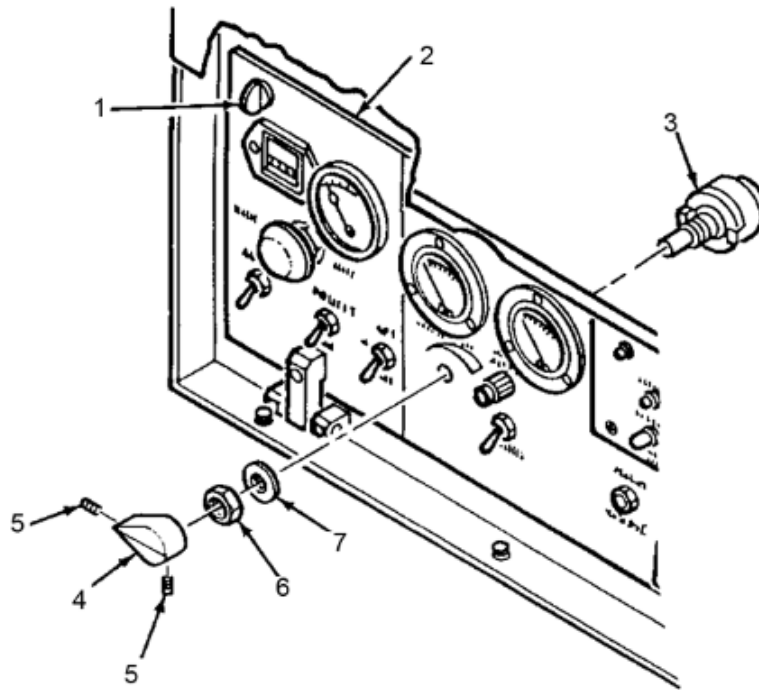


Figure 1. Voltage Adjust Rheostat.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**RELAY: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect relays (Figure 1, Item 3) for corrosion, evidence of electrical short, and obvious damage. Ensure terminal lugs are intact and secure.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**REMOVE**

1. Turn quarter-turn fasteners to unlock and open control panel.
2. Remove hold-down springs (Figure 1, Item 4) to release relays (Figure 1, Item 3) from relay sockets (Figure 1, Item 1).
3. Tag and disconnect electrical wiring from fault lockout relay (K12), auxiliary fuel transfer relay (K14), and starter cutout relay (K15).

NOTE

Note orientation of diode on relay socket (Figure 1, Item 1) before removing socket. Socket must be oriented the same way when installed to function properly.

4. Remove relay sockets (Figure 1, Item 1) from rear wall of control box by removing screws (Figure 1, Item 2).

END OF TASK**REPLACE**

1. Install relay sockets (Figure 1, Item 1) to rear wall of control box. Secure using screws (Figure 1, Item 2) and nuts (Figure 1, Item 3).
2. Connect electrical wiring to relays (K12), (K14), and (K15).
3. Insert relays (Figure 1, Item 3) into relay sockets (Figure 1, Item 1). Secure using hold-down springs (Figure 1, Item 4).
4. Close control panel and lock in place using quarter-turn fasteners.

REPLACE – CONTINUED

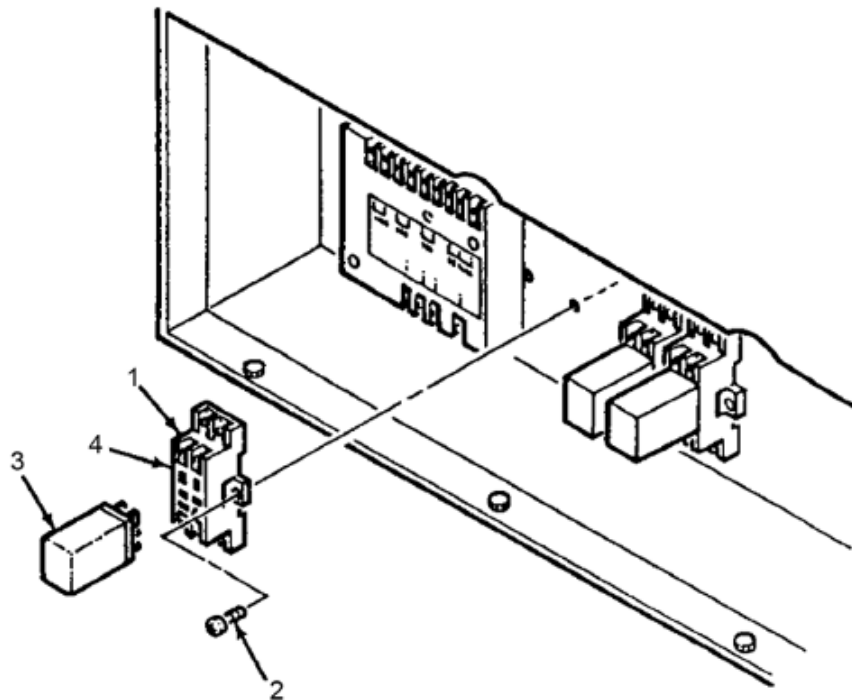


Figure 1. Control Box Relays.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FUSE, DIODE, AND TERMINAL BLOCK: INSPECT, TEST, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Multimeter (WP 0133, Table 2, Item 1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect terminal blocks (Figure 1, Item 1) and diodes (Figure 1, Item 6) for corrosion, evidence of electrical short, and obvious damage. Ensure terminal connectors are intact and secure.
2. Inspect four diodes on terminal block (TB5) for obvious damage. Check security of attachment.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are secure.

END OF TASK**TEST**

1. Connect positive (+) probes of multimeter across one diode (Figure 1, Item 6).
2. Measure resistance of diode with positive (+) probe applied to terminal of diode (Figure 1, Item 6) and negative (-) probe applied to other terminal of diode. Record ohms reading. Reverse the polarity of the probes and apply across the diode. Record ohms reading. For the diode to be in operable condition, one reading should be low and the other reading should be high. If not, the diode has failed.
3. Repeat test on remaining diodes, recording values in ohms.
4. If a diode is not working, remove it and replace with a new diode.

END OF TASK**REMOVE**

1. To remove fuse (Figure 1, Item 15), turn quarter-turn fasteners to unlock and open control panel. Unscrew cap (Figure 1, Item 16) from fuse holder (Figure 1, Item 17) and remove fuse.
2. Tag and disconnect electrical wiring from terminal blocks TB5 (Figure 1, Item 1) and TB3 (Figure 1, Item 2).
3. Remove terminal blocks TB5 (Figure 1, Item 1) and TB3 (Figure 1, Item 2) from inside wall of control box by removing screw and captive washer assemblies (Figure 1, Item 5).
4. Remove five diodes (Figure 1, Item 6).
5. To remove terminal blocks TB4 (Figure 1, Item 3) and TB6 (Figure 1, Item 4), unlock main access cover latches, and open cover.
6. Remove clear plastic covers (Figure 1, Items 7 and 8) from terminal blocks TB4 (Figure 1, Item 3) and TB6 (Figure 1, Item 4) by removing screws (Figure 1, Item 9) and lockwashers (Figure 1, Item 10).

REMOVE – CONTINUED

7. Tag and disconnect electrical wiring from terminal blocks TB4 (Figure 1, Item 3) and TB6 (Figure 1, Item 4).
8. Remove terminal blocks TB4 (Figure 1, Item 3) and TB6 (Figure 1, Item 4) from rear of control box by removing standoffs (Figure 1, Item 11) and lockwashers (Figure 1, Item 12). Remove identification plates (Figure 1, Items 13 and 14).
9. Remove fuse holder (Figure 1, Item 17) from control box by removing nut (Figure 1, Item 18).

END OF TASK**REPLACE**

1. Replace fuse holder (Figure 1, Item 17) on control box using nut (Figure 1, Item 18). Replace fuse (Figure 1, Item 15) and cap (Figure 1, Item 16).
2. Install terminal blocks TB4 (Figure 1, Item 3) and TB6 (Figure 1, Item 4) and identification plates (Figure 1, Items 13 and 14) to rear of control box. Secure using standoffs (Figure 1, Item 11) and lockwashers (Figure 1, Item 12).
3. Connect electrical wiring to terminal blocks TB4 (Figure 1, Item 3) and TB6 (Figure 1, Item 4). Replace clear plastic covers (Figure 1, Items 7, 8) using screws (Figure 1, Item 9) and lockwashers (Figure 1, Item 10).
4. Close main access cover and lock in place using latches.
5. Replace diodes (Figure 1, Item 6) onto terminal block TB5 (Figure 1, Item 1).
6. Install terminal blocks TB5 (Figure 1, Item 1) and TB3 (Figure 1, Item 2) to inside wall of control box. Secure using screw and captive washer assemblies (Figure 1, Item 5).
7. Connect electrical wiring to terminal blocks TB5 (Figure 1, Item 1) and TB3 (Figure 1, Item 2).
8. Close control panel and lock in place using quarter-turn fasteners.

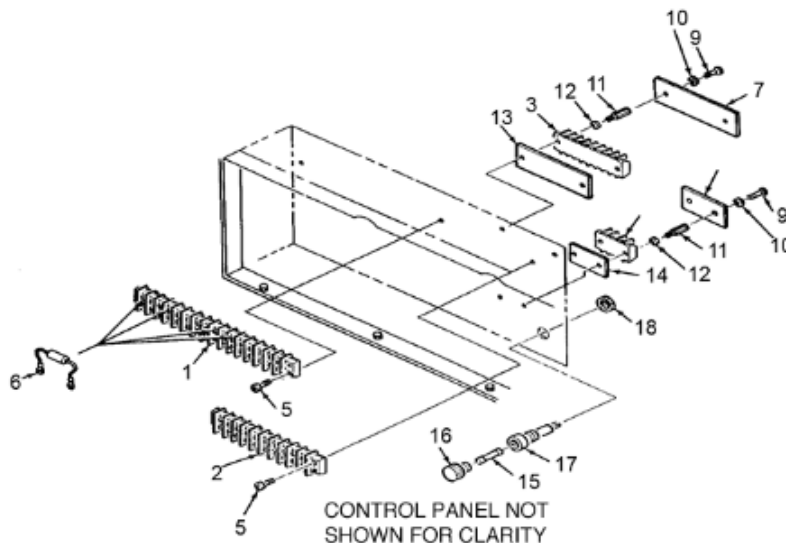


Figure 1. Fuses, Diodes, and Terminal Block.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
RECEPTACLE, FILTERS, TERMINALS, AND VOLTAGE RESISTOR: INSPECT, TEST, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0046

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect convenience receptacle (Figure 1, Item 3) for corrosion, evidence of electrical short, and obvious damage. Check terminal connectors for damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**TEST**

1. Start generator set. Test receptacle by pressing test button to reset GFCI. The reset button should release, and a red mark will show.
2. Press reset button to recycle power. Using multimeter check for voltage.
3. Check that CB3 on back of GFCI (inside set) is not tripped. Reset CB3 switch.
4. Check GFCI CB3 at (TB4), as follows:
 - a. Connect positive (+) probe of multimeter to terminal board (TB4), pin 1.
 - b. Connect negative (-) probe to terminal board (TB4), pin 3.
 - c. Start generator set. Using multimeter check voltage at rear of receptacle.
 - d. If voltage is present, remove and replace GFCI (WP 0046).

END OF TASK**REMOVE**

1. Remove screw (Figure 1, Item 1) to disconnect receptacle cover (Figure 1, Item 2) from convenience receptacle (Figure 1, Item 3). Remove cover and rubber gasket (Figure 1, Item 6) by removing screw and captive washer assemblies (Figure 1, Item 4).

REMOVE – CONTINUED**CAUTION**

Ensure wire leads on receptacle terminals are not damaged when pulling on receptacle.

2. Remove convenience receptacle (Figure 1, Item 3) from control box by removing two screws (Figure 1, Item 5).
3. Tag and disconnect electrical wiring from rear of convenience receptacle (Figure 1, Item 3).

END OF TASK**REPLACE**

1. Generator set shut down (WP 0005)
2. Battery cables disconnected (WP 0026)
3. Cable disconnected from NATO Slave Receptacle (WP 0066)
4. Connect electrical wiring to convenience receptacle (Figure 1, Item 3).
5. Install convenience receptacle (Figure 1, Item 3) to control box and secure using screws (Figure 1, Item 5)
6. Install cover (Figure 1, Item 2) and rubber gasket (Figure 1, Item 6) to control box and secure using screw and captive washer assemblies (Figure 1, Item 4). Replace screw (Figure 1, Item 1).

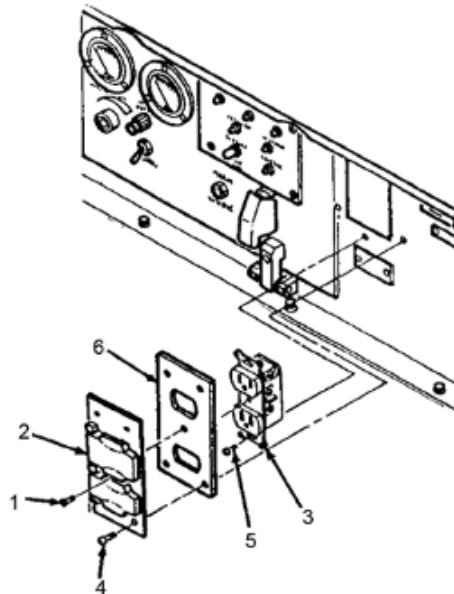


Figure 1. Convenience Receptacle.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**GROUND FAULT CIRCUIT INTERRUPTER (GFCI): INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References - cont'd

WP 0030
WP 0045

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

References

WP 0025

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect GFCI (Figure 1, Item 1) for corrosion, evidence of electrical short, and obvious damage. Depress RESET and TEST buttons to ensure smooth operation.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors are securely attached.

END OF TASK**TEST**

1. Supply power, and press reset button (button should reset).
2. Ensure circuit breaker unit is not tripped.
3. Measure voltage at convenience receptacle by placing positive probe of multimeter into smaller rectangular output socket of receptacle and negative probe of multimeter into larger rectangular output socket of receptacle. Voltage should be 120 VAC +/-6.
4. Press TEST button. Voltage should drop to zero.

END OF TASK**REMOVE**

1. Generator shut down. DC sources removed.
2. Tag and disconnect GFCI (Figure 1, Item 1) wiring from terminal block (TB4).
3. Remove GFCI (Figure 1, Item 1) from control box by removing screws (Figure 1, Item 2), washers (Figure 1, Item 3), and nuts (Figure 1, Item 4).

END OF TASK

REPLACE

1. Install GFCI (Figure 1, Item 1) to back of control box. Secure using screws (Figure 1, Item 2), washers (Figure 1, Item 3), and nuts (Figure 1, Item 4).
2. Connect GFCI (Figure 1, Item 1) electrical wiring to terminal board (TB4). Replace cover on terminal block (TB4) (WP 0030).
3. Replace battery and tray (WP 0025). Replace convenience receptacle (WP 0045).
4. Close main access cover and lock in place using latches.

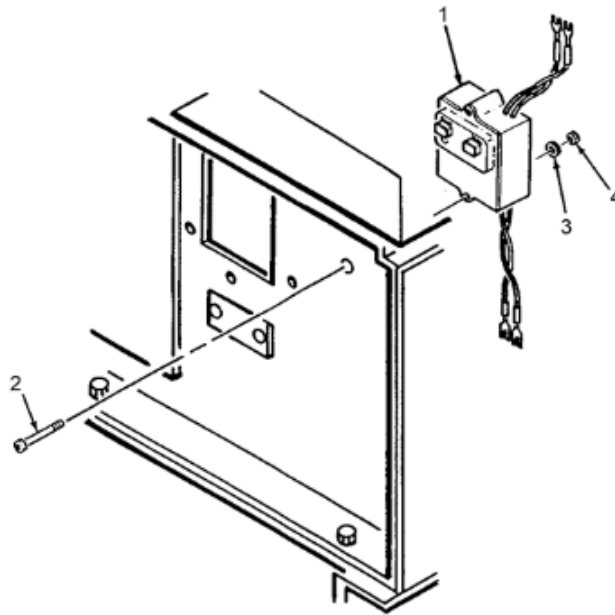


Figure 1. Ground Fault Circuit Interrupter (GFCI).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
LOAD TERMINALS AND EMI FILTER: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open. Turn output panel cover lock (Figure 1, Sheet 1 of 2, Item 2) and open output panel cover (Figure 1, Sheet 1 of 2, Item 1).
2. Inspect load terminals (Figure 1, Sheet 2 of 2, Item 10) and ground terminal (Figure 1, Sheet 2 of 2, Item 11) for corrosion, evidence of electrical short, and obvious damage. Check for crossed, stripped, or flattened threads.
3. Inspect EMI filter (Figure 1, Sheet 2 of 2, Item 9) for obvious damage. Inspect electrical wiring for cuts, abrasions, or bare wire. Ensure connectors are securely fastened.
4. Inspect output panel cover (Figure 1, Sheet 1 of 2, Item 1) for dents, cracks, or other damage. Ensure it is securely attached. Ensure output panel cover lock (Figure 1, Sheet 1 of 2, Item 2) operates smoothly, free of binding.

END OF TASK**REMOVE**

1. Disconnect load and ground wires from load terminals (Figure 1, Sheet 2 of 2, Item 10), using load wrench (Figure 1, Sheet 1 of 2, Item 3).
2. Release load wrench (Figure 1, Sheet 1 of 2, Item 3) lanyard from output box by removing screw (Figure 1, Sheet 1 of 2, Item 4), washer (Figure 1, Sheet 1 of 2, Item 5), and locknut (Figure 1, Sheet 1 of 2, Item 6). Remove lanyard from load wrench (Figure 1, Sheet 1 of 2, Item 3) only if replacement is required.
3. Tag and disconnect EMI filter (Figure 1, Sheet 2 of 2, Item 9) electrical connectors. Remove EMI filter from load and ground terminals (Figure 1, Sheet 2 of 2, Items 10 and 11) by removing nuts (Figure 1, Sheet 2 of 2, Item 7) and washers (Figure 1, Sheet 2 of 2, Item 8).
4. Remove load board (Figure 1, Sheet 2 of 2, Item 15) from generator set skid base by removing screws (Figure 1, Sheet 2 of 2, Item 16), washers (Figure 1, Sheet 2 of 2, Item 17), and locknuts (Figure 1, Sheet 2 of 2, Item 18).
5. Remove load terminals (Figure 1, Sheet 2 of 2, Item 10) by removing nuts (Figure 1, Sheet 2 of 2, Item 12) and washers (Figure 1, Sheet 2 of 2, Item 13). Remove ground terminal (Figure 1, Sheet 2 of 2, Item 11) by removing nut (Figure 1, Sheet 2 of 2, Item 14) and washers (Figure 1, Sheet 2 of 2, Item 13).

END OF TASK

REPLACE

1. Replace load terminals (Figure 1, Sheet 2 of 2, Item 10) using nuts (Figure 1, Sheet 2 of 2, Item 12) and washers (Figure 1, Sheet 2 of 2, Item 13). Replace ground terminal (Figure 1, Sheet 2 of 2, Item 11, lower right-hand hole) using nut (Figure 1, Sheet 2 of 2, Item 14) and washers (Figure 1, Sheet 2 of 2, Item 13).
2. Install load board (Figure 1, Sheet 2 of 2, Item 15) to generator set skid base. Secure using screws (Figure 1, Sheet 2 of 2, Item 16), washers (Figure 1, Sheet 2 of 2, Item 17), and locknuts (Figure 1, Sheet 2 of 2, Item 18).
3. Replace EMI filter (Figure 1, Sheet 2 of 2, Item 9) onto load and ground terminals (Figure 1, Sheet 2 of 2, Items 10 and 11). Secure using nuts (Figure 1, Sheet 2 of 2, Item 7) and washers (Figure 1, Sheet 2 of 2, Item 8). Connect EMI filter connectors.
4. Connect electrical cables to load and ground terminals (Figure 1, Sheet 2 of 2, Items 10 and 11) using load wrench (Figure 1, Sheet 1 of 2, Item 3). Neutral terminal is upper right. Ground terminal is lower right.
5. Attach load wrench (Figure 1, Sheet 1 of 2, Item 3) lanyard to output box using screw (Figure 1, Sheet 1 of 2, Item 4), washer (Figure 1, Sheet 1 of 2, Item 5), and nut (Figure 1, Sheet 1 of 2, Item 6).
6. Close output panel cover (Figure 1, Sheet 1 of 2, Item 1) and engage lock (Figure 1, Sheet 1 of 2, Item 2).
7. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

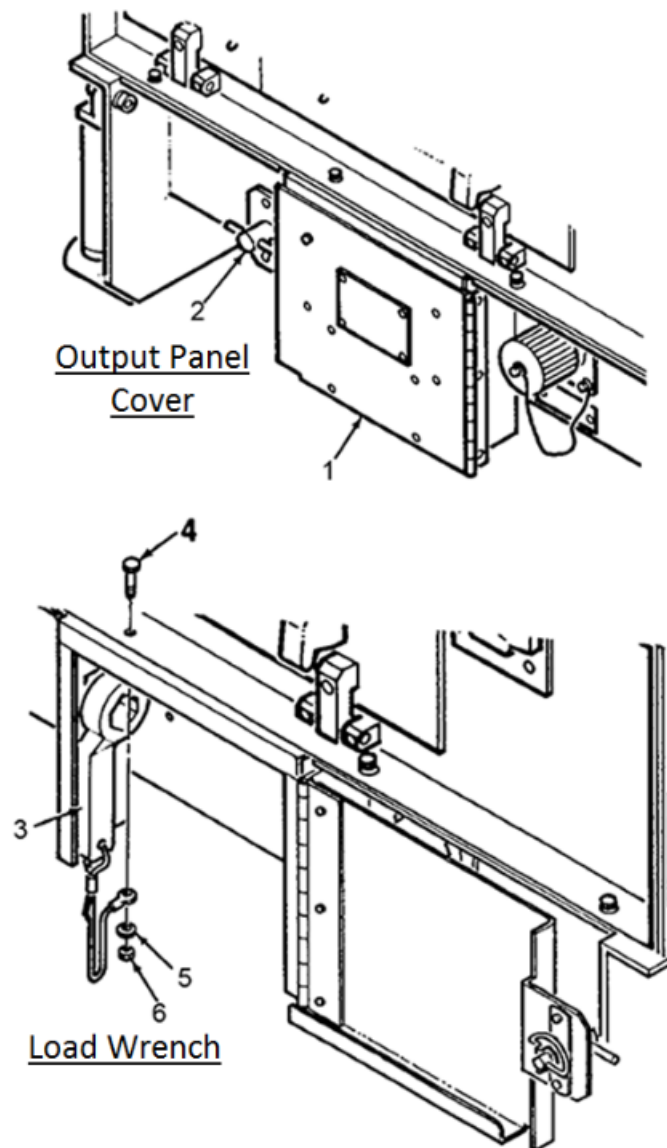


Figure 1. Load Terminals and EMI Filter (Sheet 1 of 2).

REPLACE – CONTINUED

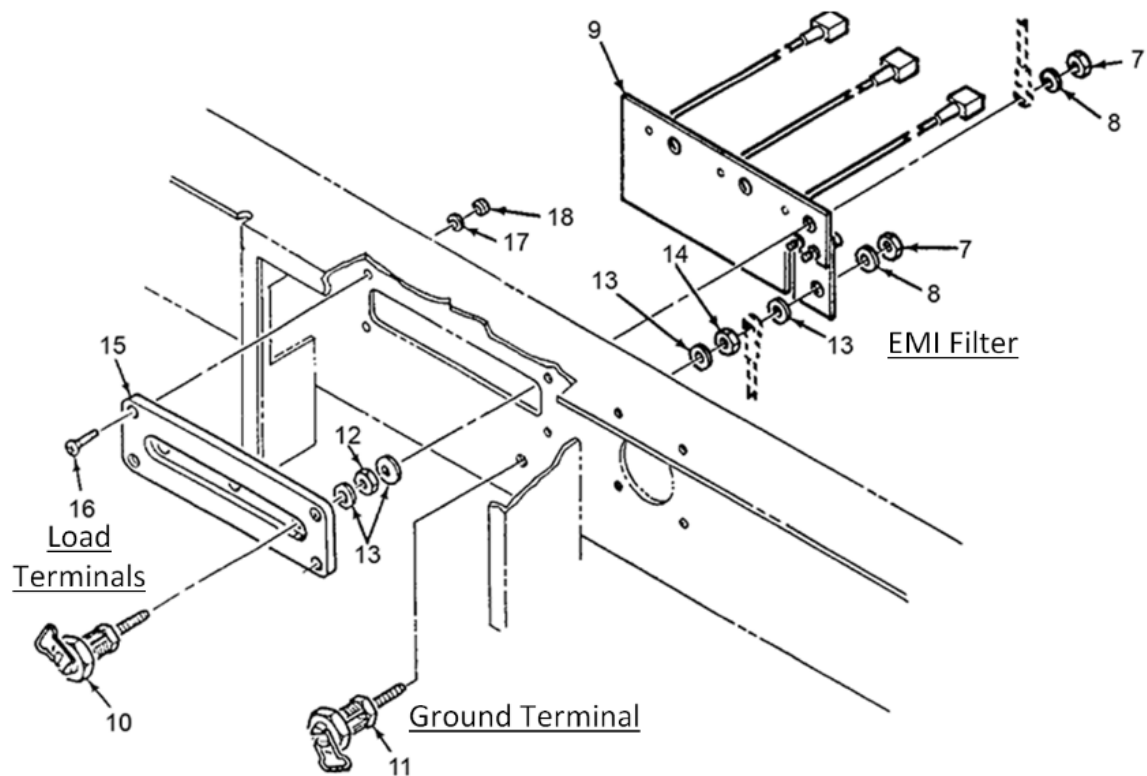


Figure 1. Load Terminals and EMI Filter (Sheet 2 of 2).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**VOLTAGE RESISTOR: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)

Battery disconnected (WP 0025)

Battery cables disconnected (WP 0026)

Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Using inspection mirror, visually inspect voltage resistors (Figure 1, Item 3) for corrosion, evidence of electrical short, and obvious damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.

END OF TASK**REMOVE**

1. Turn cover lock (Figure 1, Item 2) and open output panel cover (Figure 1, Item 1).
2. Disconnect electrical wiring from rear of three voltage resistors (Figure 1, Item 3).
3. Remove three voltage resistors (Figure 1, Item 3) from back of output box by removing screws (Figure 1, Item 4), washers (Figure 1, Item 5), and locknuts (Figure 1, Item 6).

END OF TASK**REPLACE**

1. Connect three voltage resistors (Figure 1, Item 3) to back of output box. Secure using screws (Figure 1, Item 4), washers (Figure 1, Item 5), and locknuts (Figure 1, Item 6).
2. Connect electrical wiring to voltage resistors (Figure 1, Item 3).
3. Close output panel cover (Figure 1, Item 1) and engage cover lock (Figure 1, Item 2).
4. Close generator set main access cover and lock in place using latches.

REPLACE – CONTINUED

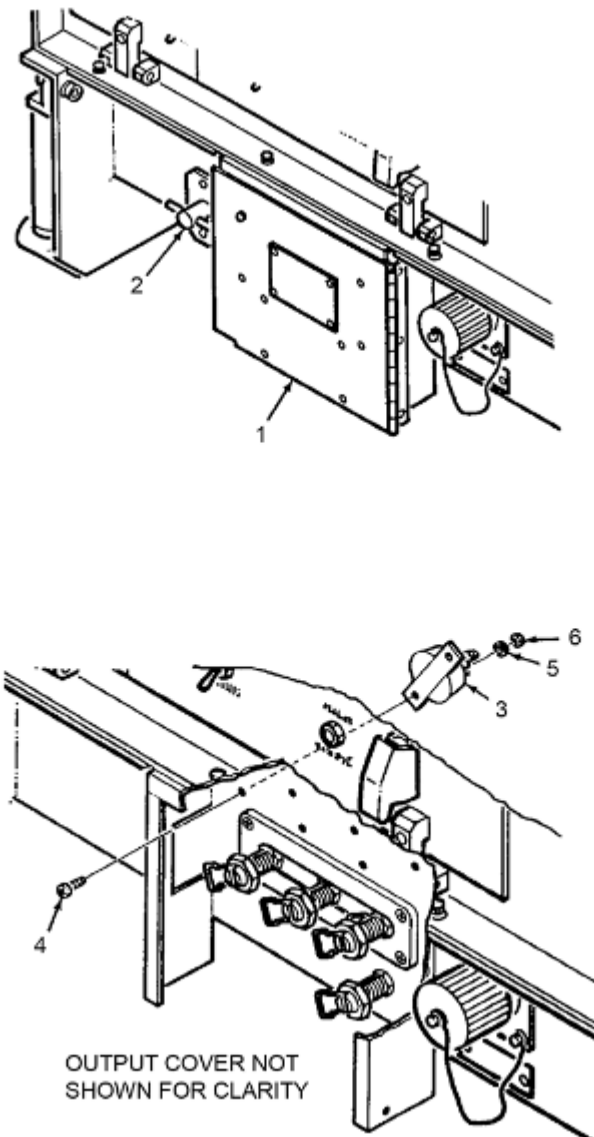


Figure 1. Voltage Resistors.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CONTROL BOX WIRING HARNESS: INSPECT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)

Battery cables disconnected (WP 0026)

Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect harness connector (J7) (Figure 1, Item 1) for corrosion, evidence of electrical short, and obvious damage. Check for bent, broken, or missing pins.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors and terminal lugs are securely attached.

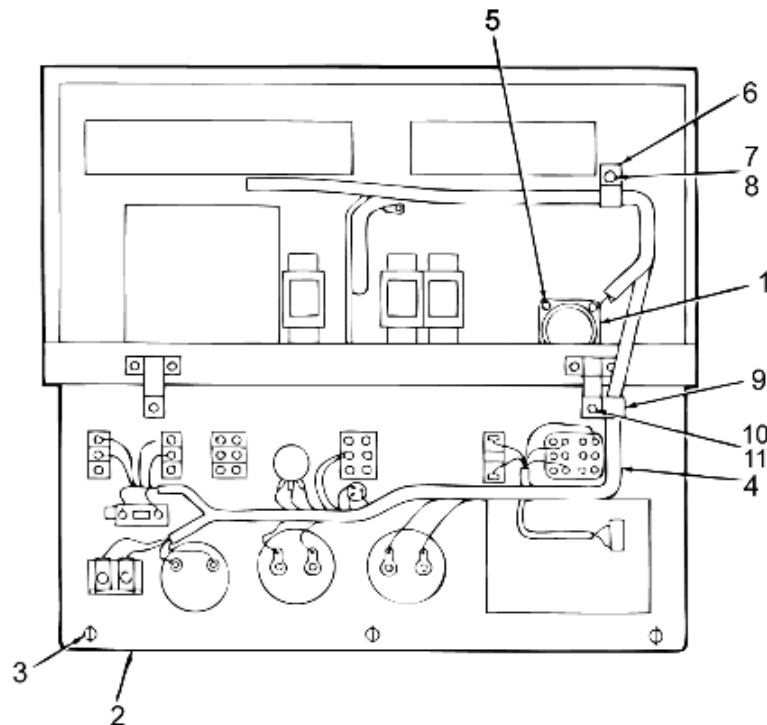


Figure 1. Control Box Wiring Harness.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
COOLING SYSTEM: INSPECT, TEST

INITIAL SETUP:**Tools and Special Tools**

Multimeter (WP 0133, Table 2, Item 1)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)

Battery cables disconnected (WP 0026)

Cable disconnected from NATO Slave Receptacle
(WP 0066)

INSPECT

1. Inspect air outlet panel (Figure 1, Item 2) and cooling fans (Figure 1, Item 1) for obvious damage. Manually operate fan blades to ensure smooth operation.
2. Inspect HI/LO temperature switch (Figure 1, Item 3) for obvious damage. Check that terminal lugs are securely attached and free of corrosion.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.
4. Inspect fan power cords for damage.

END OF TASK**TEST**

1. Test is limited to (a) a voltage test of the fans (Figure 1, Item 1) and (b) a continuity test of the HI/LO temperature switch (Figure 1, Item 3).
2. Ensure cooling fans (Figure 1, Item 1) operate ON and OFF as dictated by HI/LO temperature switch (Figure 1, Item 3).

TEST – CONTINUED

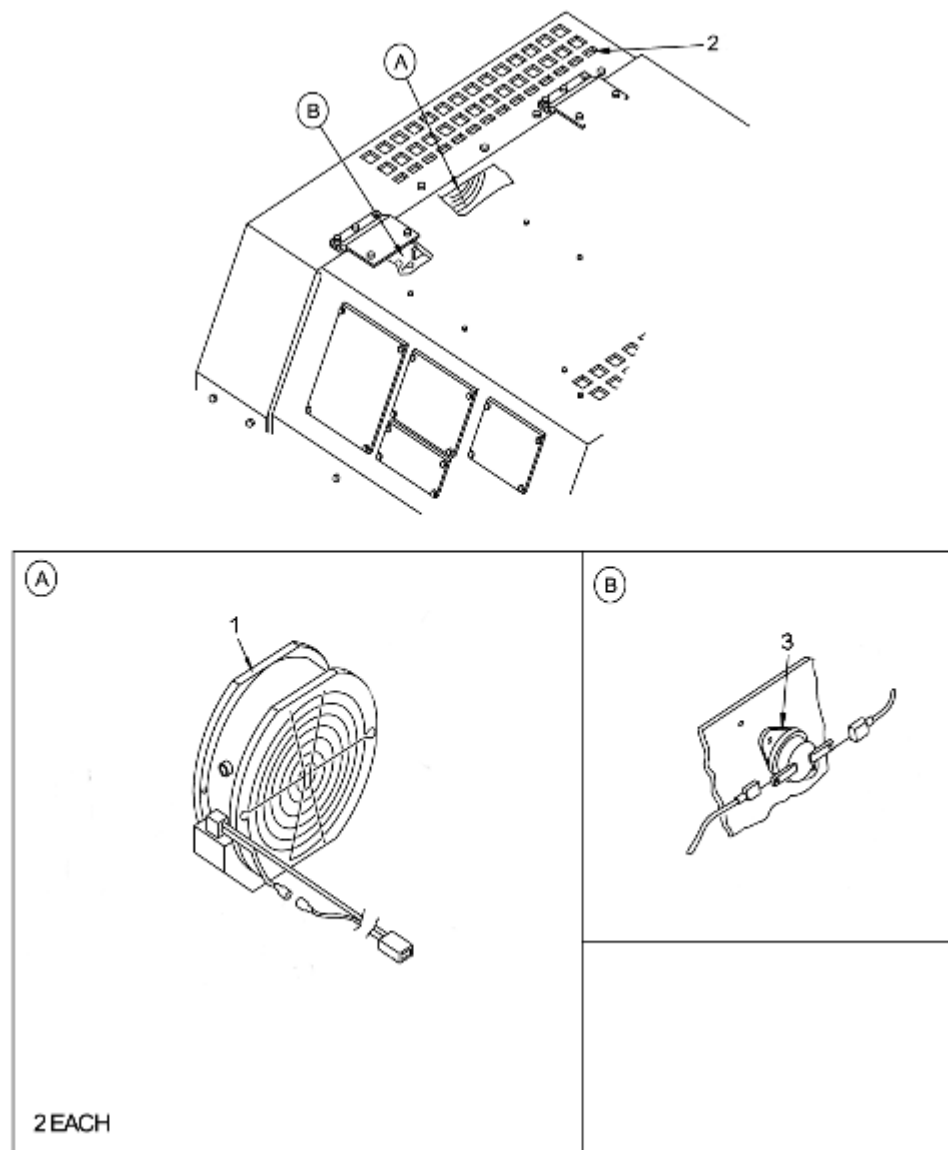


Figure 1. Cooling System.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**COOLING FAN ASSEMBLY: INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

NOTE

Two thermostatically controlled fans are supplied with the generator set. One is attached to the inside of the main access cover, and one is mounted to the right back panel on the inside of the generator set.

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect air outlet panels (Figure 1, Item 1) and cooling fans (Figure 1, Item 2) for obvious damage. Manually operate fan blades to ensure smooth operation.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.
4. Inspect fan power cords (Figure 1, Item 6) for damage.

END OF TASK**TEST**

Perform continuity test of the fans (Figure 1, Item 2), their wires, and connections.

END OF TASK**REMOVE**

1. Tag and disconnect two electrical wires (Figure 1, Items 18 and 19) from B3 high-temperature switch (Figure 1, Item 17) (110 °F).
2. Disconnect fan power cord (Figure 1, Item 6) from generator set wiring harness.
3. Remove high-temperature (B3) fan (Figure 1, Item 2) from main access cover by removing screws (Figure 1, Item 8), lockwashers (Figure 1, Item 9), and washers (Figure 1, Item 10).

NOTE

Remove air outlet panel (Figure 1, Item 1) only if fan (Figure 1, Item 2) is to be replaced.
Air outlet panel must be retained for use on new fan.

4. Tag and disconnect two electrical wires (Figure 1, Items 18 and 19) from B2 low-temperature switch (Figure 1, Item 17) (85 °F).

REMOVE – CONTINUED

5. Disconnect fan power cord (Figure 1, Item 6) from generator set wiring harness.
6. Remove low-temperature (B2) fan (Figure 1, Item 2) from right back panel of inside generator set by removing two screws (Figure 1, Item 8), lockwashers (Figure 1, Item 9), and washers (Figure 1, Item 10).

NOTE

Remove air outlet panel (Figure 1, Item 1) only if fan (Figure 1, Item 2) is to be replaced.
Air outlet panel must be retained for use on new fan.

7. Remove air outlet panel (Figure 1, Item 1) from fan (Figure 1, Item 2) by removing screws (Figure 1, Item 3), washers (Figure 1, Item 4), and nuts (Figure 1, Item 5).
8. Disconnect electrical wire (Figure 1, Item 7) from fan (Figure 1, Item 2) by removing screw (Figure 1, Item 11), lockwasher (Figure 1, Item 12), and washer (Figure 1, Item 13).
9. Remove fan (Figure 1, Item 2).

END OF TASK**REPLACE**

1. Attach low-temperature fan (B2) (Figure 1, Item 2) (85 °F) to main access cover and secure using screws (Figure 1, Item 8), lockwashers (Figure 1, Item 9), and washers (Figure 1, Item 10). Connect two electrical wires (Figure 1, Item 7) to low-temperature fan.
2. Attach low-temperature fan (Figure 1, Item 2) to main access cover and secure using screws (Figure 1, Item 8), lockwashers (Figure 1, Item 9), and washers (Figure 1, Item 10). Left-hand screw (Figure 1, Item 8) secures electrical wire (Figure 1, Item 7).
3. Connect fan power cord (Figure 1, Item 6) to generator set wiring harness. Connect wire (Figure 1, Item 7) to fan (Figure 1, Item 2) using screw (Figure 1, Item 11), lockwasher (Figure 1, Item 12), and washer (Figure 1, Item 13).

REPLACE – CONTINUED

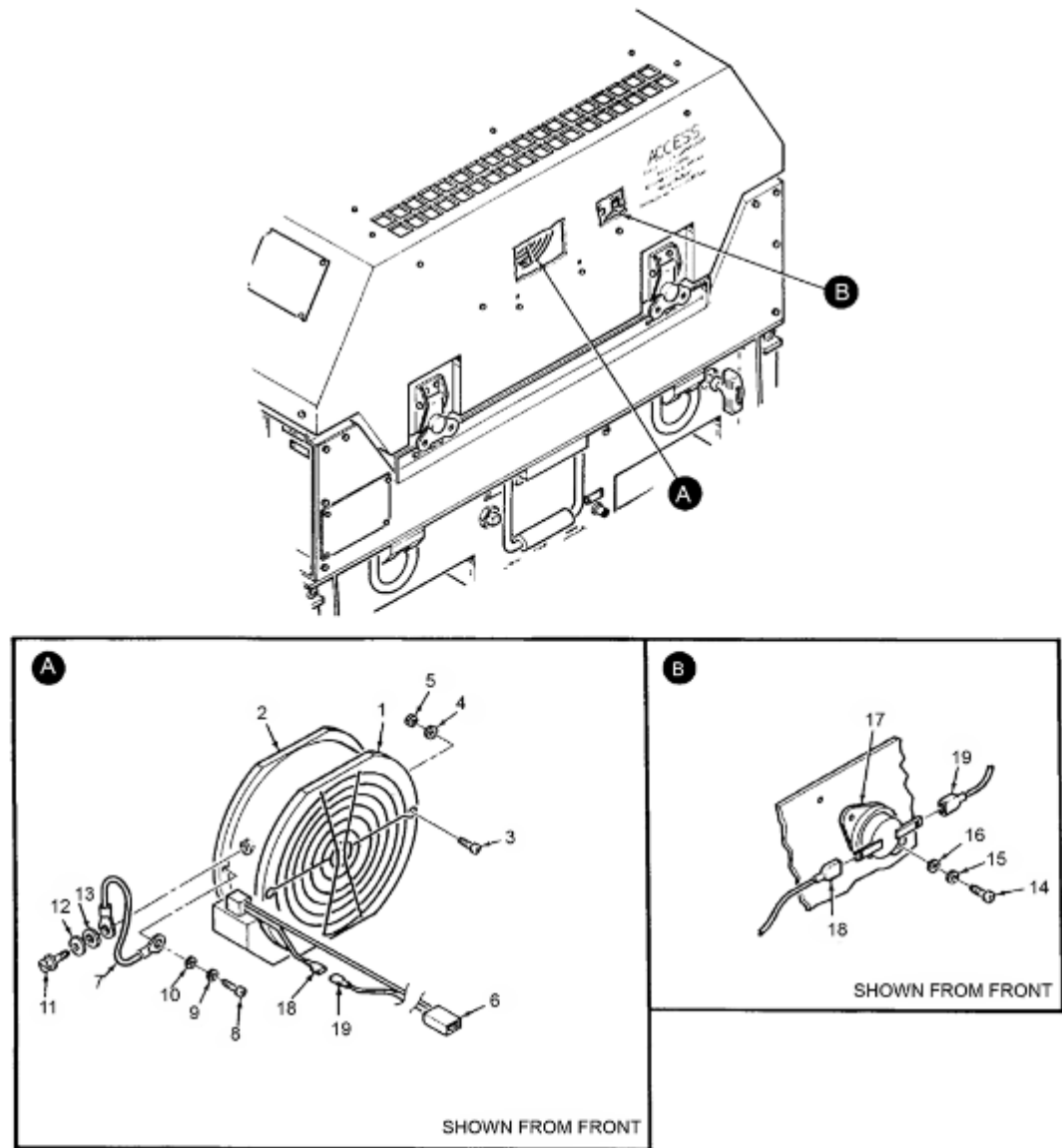


Figure 1. Temperature Switch and Cooling Fan.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**HI/LO TEMPERATURE SWITCHES: INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0051

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

NOTE

Each generator set fan has its own thermostatically controlled switch.

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect temperature switch (Figure 1, Item 1) for obvious damage. Check that electrical terminals (Figure 1, Item 2) are securely attached and free of corrosion.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached. Inspect fan power cords (WP 0051, Figure 1, Item 6) for damage. Check that electrical connectors are securely attached.

END OF TASK**TEST**

Perform continuity test on switch.

END OF TASK**REMOVE**

1. Tag and disconnect two electrical wires (Figure 1, Items 2 and 6) from B3 high-temperature switch (Figure 1, Item 1) (110 °F). Remove B3 high-temperature switch (Figure 1, Item 1) from interior of main access cover by removing screws (Figure 1, Item 5), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 3).
2. From right-side wall of enclosure, tag and disconnect two electrical wires (Figure 1, Items 2 and 6) from B2 low temperature switch (Figure 1, Item 1), by removing screws (Figure 1, Item 5), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 3).

END OF TASK

REPLACE

1. Attach low-temperature switch (Figure 1, Item 1) (85 °F) to main access cover and secure using two screws (Figure 1, Item 5), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 3). Connect electrical wires (Figure 1, Items 2 and 6) to B2 low-temperature switch.
2. Attach B3 high-temperature switch (Figure 1, Item 1) (110 °F) to main access cover and secure using screws (Figure 1, Item 5), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 3). Connect electrical wires (Figure 1, Items 2 and 6) to B3 high-temperature switch.

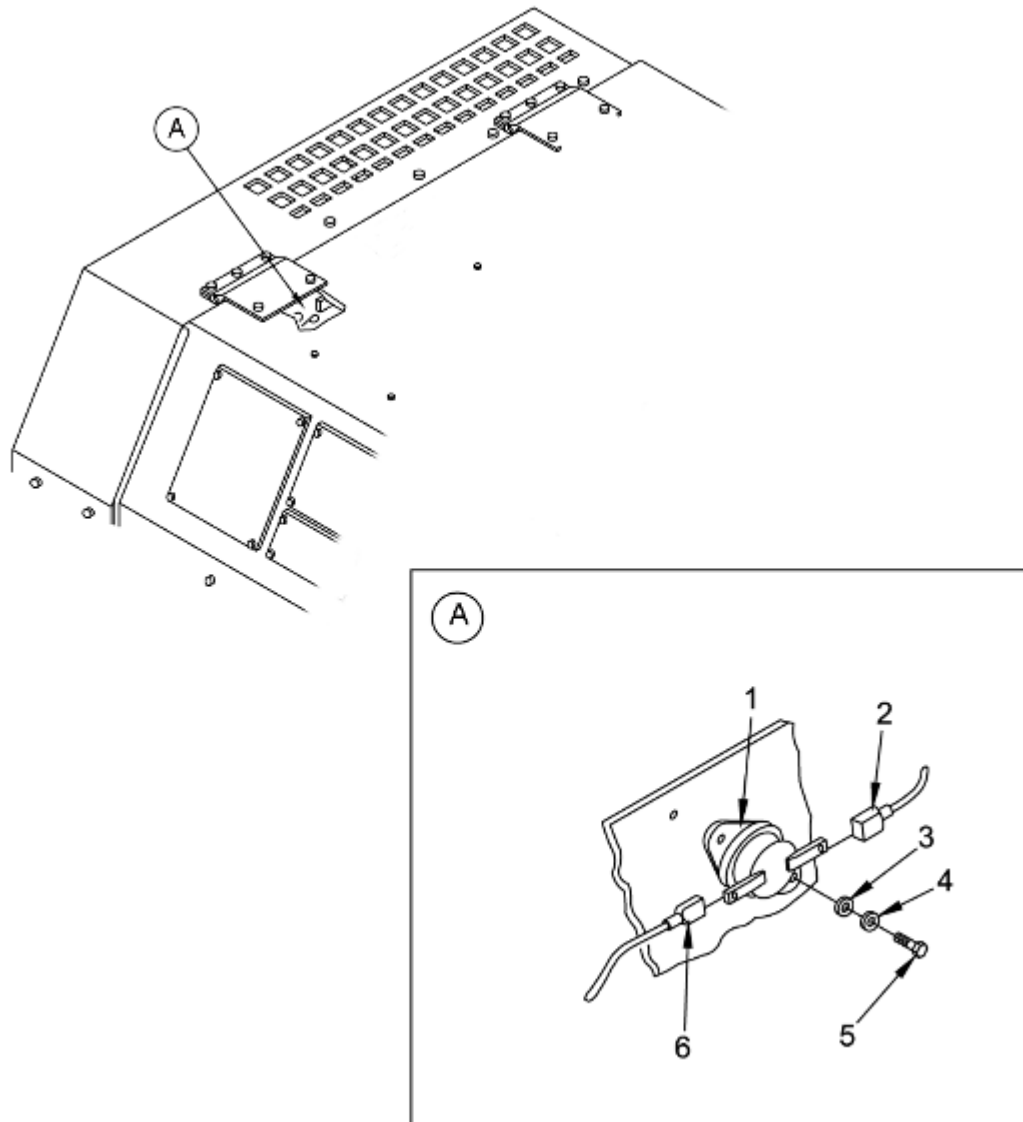


Figure 1. HI/LO Temperature Switches.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**FUEL SYSTEM ASSEMBLY: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Personnel Required

Power Generation Equipment Repairer 91D (1)

References

WP 0055

WP 0056

Equipment Condition

Generator set shut down (WP 0005)

Battery cables disconnected (WP 0026)

Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect fuel level switch (Figure 1, Item 9) for corrosion and obvious damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure electrical connector plugs are securely attached.

END OF TASK**REMOVE****NOTE**

Note position of fuel level switch (Figure 1, Item 9) and gasket (Figure 1, Item 7) prior to removing from fuel tank (Figure 1, Item 6). Take note of hole pattern when removing to ensure proper installation.

1. Disconnect fuel level switch (Figure 1, Item 9) electrical plugs (WP 0056, Figure 1, Items 8 and 9).
2. Remove any damaged components.

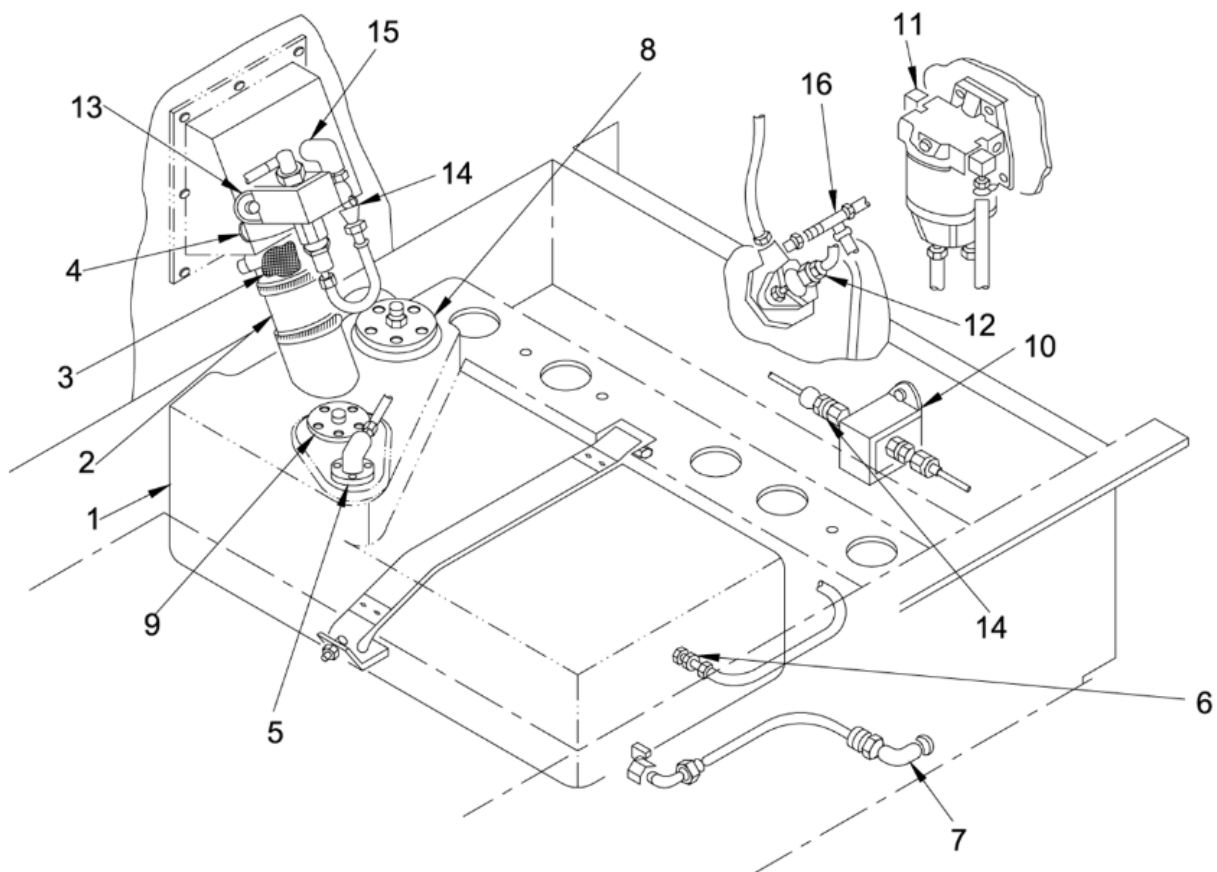
END OF TASK**REPLACE****NOTE**

If new fuel level switch (Figure 1, Item 9) has electrical connector plugs, omit Step 1 below.

1. Proceed, as follows, if electrical connector plugs (WP 0056, Figure 1, Items 8 and 9) need to be installed on fuel level switch (Figure 1, Item 9); otherwise, skip to Step 2:

REPLACE – CONTINUED

2. Strip 1/8 inch insulation from switch wires (WP 0056, Figure 1, Item 4) and crimp male contacts (Figure 1, Item 8) to ends of wires.
3. Insert blue wire into position 1, black wire into position 2, and yellow wire into position 3 of three-circuit connector plug (Figure 1, Item 5).
4. Insert red wires into positions 1 and 2 of two-circuit electrical connector plug (Figure 1, Item 9).
5. Align mounting holes on fuel level switch (Figure 1, Item 4) with holes in gasket (Figure 1, Item 7) prior to mounting into fuel tank (Figure 1, Item 1).
6. Replace fuel level switch (WP 0056, Figure 1, Item 4) and gasket (Figure 1, Item 7) into fuel tank (Figure 1, Item 1). Secure using screws (WP 0055, Figure 1, Item 1), lockwashers (Figure 1, Item 2), and washers (Figure 1, Item 3).
7. Connect fuel-level-switch electrical connector plugs (Figure 1, Items 8 and 9).
8. Close main access cover and lock in place.

**Figure 1. Fuel System Assembly.****Table 1. Figure 1 Legend.**

ITEM	DESCRIPTION
1	Fuel Tank
2	Filler Neck

REPLACE – CONTINUED**Table 1. Figure 1 Legend. – Continued**

ITEM	DESCRIPTION
3	Fuel Strainer
4	Fill Cap
5	Pick-Up Connection
6	Return Connection
7	Drain Connection
8	Sending Unit
9	Fuel Level Switch
10	Electric Fuel Pump
11	Fuel Filter/Water Separator
12	Fuel Injection Pump
13	Auxiliary Fuel Transfer Pump
14	Fuel Strainer
15	Auxiliary Fuel Input Connection
16	Tee Pipe

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE

FUEL TANK STRAINER ASSEMBLY: INSPECT, REMOVE, REPLACE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
 Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

References

WP 0028
 WP 0059

Materials/Parts

Sealant, Thread, Pipe, Loctite 565 (WP 0136, Table 1, Item 22)

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect fuel fill cap (Figure 1, Item 1) for obvious damage. Inspect for crossed, stripped, or damaged threads.
2. Inspect fuel strainer assembly (Figure 1, Item 3) for dirt, clogging, and corrosion. Check that all screen material is intact and free from damage. Ensure screen is securely attached to lip.
3. Inspect fuel fill pocket (Figure 1, Item 8) for cracks, dents, or evidence of leakage. Inspect for corrosion.
4. Inspect fill port collar (Figure 1, Item 11) and fuel tank for cracks, dents, or evidence of leakage. Inspect for corrosion.

END OF TASK

REMOVE

1. Unlock main access cover latches and lift cover to open.
2. Remove fuel fill cap (Figure 1, Item 1) from fuel fill throat (Figure 1, Item 2). Remove fuel strainer assembly (Figure 1, Item 3).
3. Release fuel cap chain (Figure 1, Item 4) from fill pocket wall by removing screw (Figure 1, Item 5), washer (Figure 1, Item 6), and locknut (Figure 1, Item 7).
4. Loosen clamps (Figure 1, Item 10) and remove fill port collar (Figure 1, Item 11) from fill pocket (Figure 1, Item 8) and fuel tank (Figure 1, Item 9).
5. Disconnect hose (Figure 1, Item 12) from tee (Figure 1, Item 17) by loosening clamp (Figure 1, Item 13).
6. Disconnect hose (Figure 1, Item 14) from fitting (Figure 1, Item 15) by loosening clamp (Figure 1, Item 16). Remove fitting (Figure 1, Item 15), tee (Figure 1, Item 17), and pipe (Figure 1, Item 18) from fill pocket (Figure 1, Item 8).

REMOVE – CONTINUED

7. If removal of fill pocket (Figure 1, Item 8) is required, remove auxiliary fuel pump (WP 0059) and connectors and Frequency Converter (A8) (WP 0028).
8. Remove fill pocket (Figure 1, Item 8) from enclosure by removing screws (Figure 1, Item 19), lockwashers (Figure 1, Item 20), and washers (Figure 1, Item 21).

END OF TASK**REPLACE**

1. Apply a thin continuous bead of sealant compound (Loctite 565, WP 0136, Table 1) to all fitting threads prior to installation.
2. Connect pipe (Figure 1, Item 18), tee (Figure 1, Item 17), and fitting (Figure 1, Item 15) to fill pocket (Figure 1, Item 8).
3. Replace collar (Figure 1, Item 11) onto fill pocket (Figure 1, Item 8) and fuel tank (Figure 1, Item 9). Secure by tightening clamps (Figure 1, Item 10).
4. Replace fill pocket (Figure 1, Item 8) using screws (Figure 1, Item 19), lockwashers (Figure 1, Item 20), and washers (Figure 1, Item 21).
5. Secure collar (Figure 1, Item 11) to fill pocket (Figure 1, Item 8) and fuel tank (Figure 1, Item 9) using two clamps (Figure 1, Item 10).
6. Connect hose (Figure 1, Item 14) to fitting (Figure 1, Item 15) and tighten clamp (Figure 1, Item 16). Connect hose (Figure 1, Item 12) to tee (Figure 1, Item 17) and tighten clamp (Figure 1, Item 13).
7. Replace fill cap chain (Figure 1, Item 4) to fill pocket (Figure 1, Item 8) using screw (Figure 1, Item 5), washer (Figure 1, Item 6), and locknut (Figure 1, Item 7).
8. Carefully replace fuel strainer assembly (Figure 1, Item 3) into fuel throat (Figure 1, Item 2), making sure not to damage screen. Screw cap (Figure 1, Item 1) onto throat (Figure 1, Item 2).
9. Replace auxiliary fuel pump (WP 0059) and fuel connection.
10. Replace Frequency Converter (A8) (WP 0028).
11. Replace any damaged components.
12. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

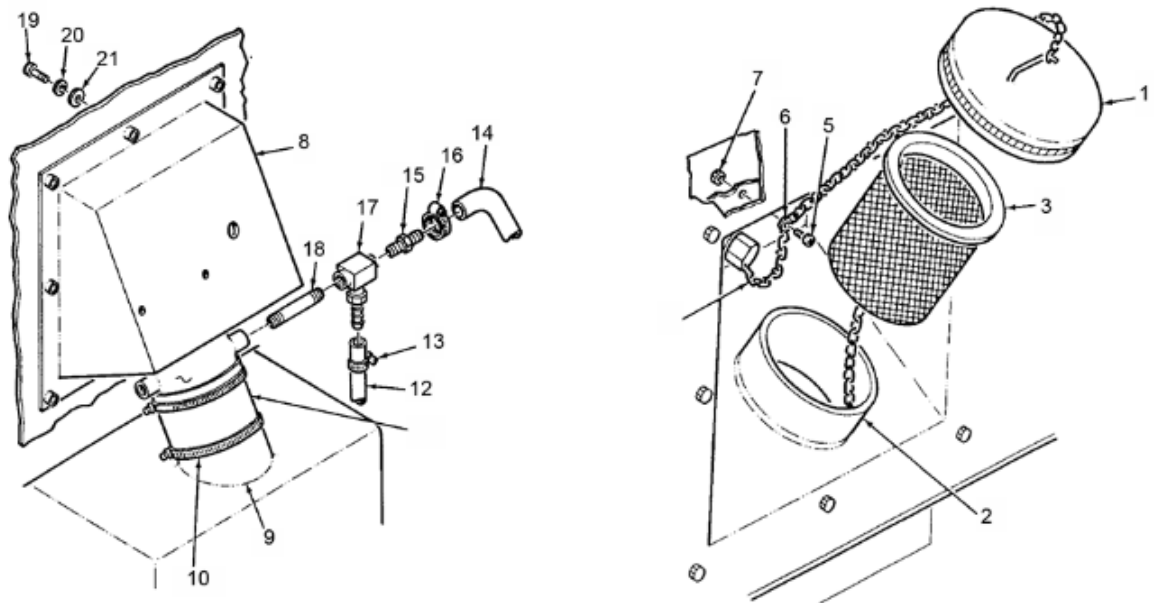


Figure 1. Fuel Tank Strainer Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**FUEL-LEVEL ASSEMBLY: INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect fuel-level sender (Figure 1, Item 12) for corrosion and obvious damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage.

END OF TASK**TEST**

1. Remove fuel-level sender (Figure 1, Item 2) from fuel tank (Figure 1, Item 5).
2. Inspect and ensure float moves up and down freely.
3. Using a multimeter place positive (+) lead on wire #2V18 and negative (-) lead on wire #40A18.
4. Move float up and down. Resistance should vary.

END OF TASK**REMOVE****CAUTION**

The float can come loose. Ensure that you do not disturb the float or release it from its holder.

NOTE

Note position of fuel-level sender (Figure 1, Item 2) and gasket (Figure 1, Item 10) prior to removing from fuel tank (Figure 1, Item 5).

1. Tag and disconnect electrical wire (Figure 1, Item 1) from fuel-level sender (Figure 1, Item 2) by removing captive nut and washer (Figure 1, Item 3) from stud (Figure 1, Item 4) on fuel-level sender (Figure 1, Item 2).

REMOVE – CONTINUED

2. Remove fuel-level sender (Figure 1, Item 2) and gasket (Figure 1, Item 10) from fuel tank (Figure 1, Item 5) by removing screws (Figure 1, Item 6), lockwashers (Figure 1, Item 7), and washers (Figure 1, Item 8). Remove remaining wires (Figure 1, Item 9).

END OF TASK**REPLACE**

1. Align mounting holes on fuel-level sender (Figure 1, Item 2) with holes in gasket (Figure 1, Item 10) prior to mounting into fuel tank (Figure 1, Item 5).
2. Replace fuel-level sender (Figure 1, Item 2) and gasket (Figure 1, Item 10) on fuel tank (Figure 1, Item 5). Secure sender and wire (Figure 1, Item 9) using screws (Figure 1, Item 6), lockwashers (Figure 1, Item 7), and washers (Figure 1, Item 8).
3. Connect electrical wire (Figure 1, Item 1) to stud (Figure 1, Item 4) on fuel-level sender (Figure 1, Item 2), using nut and captive washer (Figure 1, Item 3).
4. Close main access cover and lock in place.

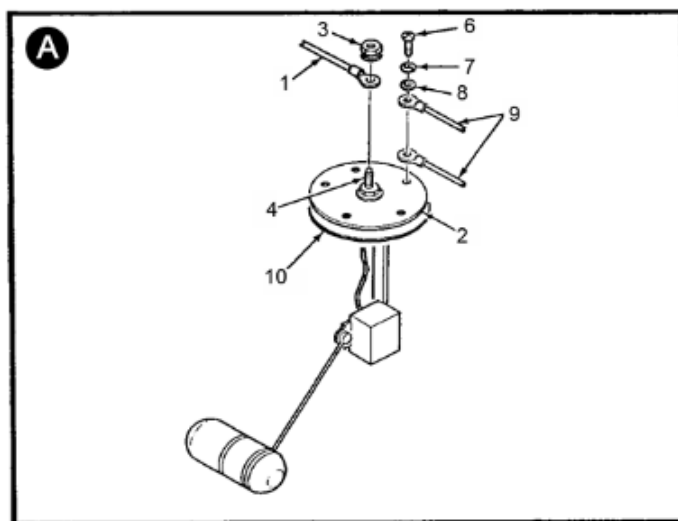
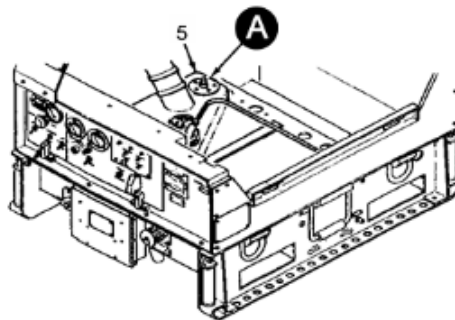


Figure 1. Fuel-Level Sender Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**FUEL-LEVEL SWITCH: INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect fuel level switch (Figure 1, Item 4) for corrosion and obvious damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure electrical connector plugs are securely attached.

END OF TASK**TEST****NOTE**

Note position of fuel-level switch (Figure 1, Item 4) and gasket (Figure 1, Item 7) prior to removing from fuel tank (Figure 1, Item 6). Take note of hole pattern when removing to ensure proper installation.

1. Remove fuel-level switch (Figure 1, Item 4) from fuel tank.
2. Inspect fuel-level switch (Figure 1, Item 4) and ensure float moves freely.
3. Hold fuel-level switch (Figure 1, Item 4) vertically and ensure float is resting on bottom stops.
4. Check continuity between J8 pins 1 and 2 and between J8 pins 2 and 3.
5. Check continuity between J11 pins 1 and 2.

END OF TASK**REMOVE**

1. Disconnect fuel-level switch (Figure 1, Item 4) electrical plugs (Figure 1, Items 8 and 9).
2. Remove screws (Figure 1, Item 1), lockwashers (Figure 1, Item 2), and washers (Figure 1, Item 3) from fuel-level switch (Figure 1, Item 4). Remove fuel-level switch (Figure 1, Item 4) and gasket (Figure 1, Item 7) from fuel tank (Figure 1, Item 6).

END OF TASK**REPLACE****NOTE**

If new fuel-level switch (Figure 1, Item 4) has electrical connector plugs (Figure 1, Items 8 and 9), omit Step 1 below.

1. Proceed, as follows, if electrical connector plugs (Figure 1, Items 8 and 9) need to be installed on fuel-level switch (Figure 1, Item 4); otherwise, skip to Step 2:
2. Strip 1/8 inch insulation from fuel-level switch (Figure 1, Item 4) wires and crimp male contacts (Figure 1, Item 5) onto ends of wires.
3. Insert blue wire into position 1, black wire into position 2, and yellow wire into position 3 of three-circuit connector plug (Figure 1, Item 5).
4. Insert red wires into positions 1 and 2 of two-circuit electrical connector plug (Figure 1, Item 9).
5. Align mounting holes on fuel-level switch (Figure 1, Item 4) with holes in gasket (Figure 1, Item 7) prior to mounting into fuel tank (Figure 1, Item 6).
6. Replace fuel-level switch (Figure 1, Item 4) and gasket (Figure 1, Item 7) in fuel tank (Figure 1, Item 6). Secure using screws (Figure 1, Item 1), lockwashers (Figure 1, Item 2), and washers (Figure 1, Item 3).
7. Connect electrical connector plugs (Figure 1, Items 8 and 9) of fuel level switch.
8. Close main access cover and lock in place.

REPLACE – CONTINUED

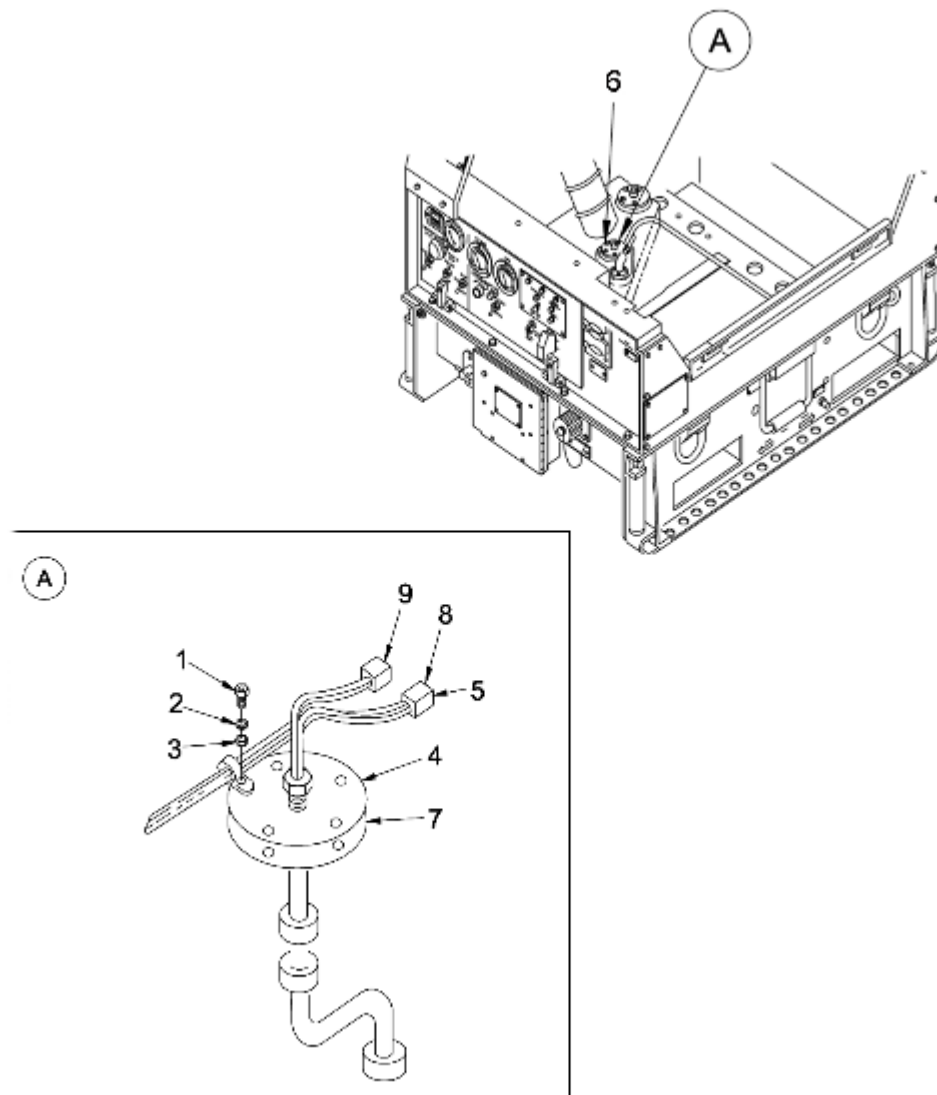


Figure 1. Fuel-Level Switch.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**FUEL TANK PICKUP TUBE: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect fuel tank pickup tube (Figure 1, Item 9) for corrosion and obvious damage.
3. Inspect fuel hose (Figure 1, Item 1) for cuts, cracks, deterioration, or other damage. Check for evidence of leakage. Inspect for crossed, stripped, or damaged threads.

END OF TASK**REMOVE**

1. Disconnect fuel hose (Figure 1, Item 1) from elbow (Figure 1, Item 2).
2. Remove fuel tank pickup tube (Figure 1, Item 9) and gasket (Figure 1, Item 8) from fuel tank (Figure 1, Item 4) by removing screws (Figure 1, Item 5), lockwashers (Figure 1, Item 6), and washers (Figure 1, Item 7).

END OF TASK**REPLACE**

1. Replace fuel tank pickup tube (Figure 1, Item 9) and gasket (Figure 1, Item 8) on fuel tank (Figure 1, Item 4). Secure using screws (Figure 1, Item 5), lockwashers (Figure 1, Item 6), and washers (Figure 1, Item 7).
2. Connect fuel hose (Figure 1, Item 1) to elbow (Figure 1, Item 2).
3. Close main access cover and lock in place.

REPLACE – CONTINUED

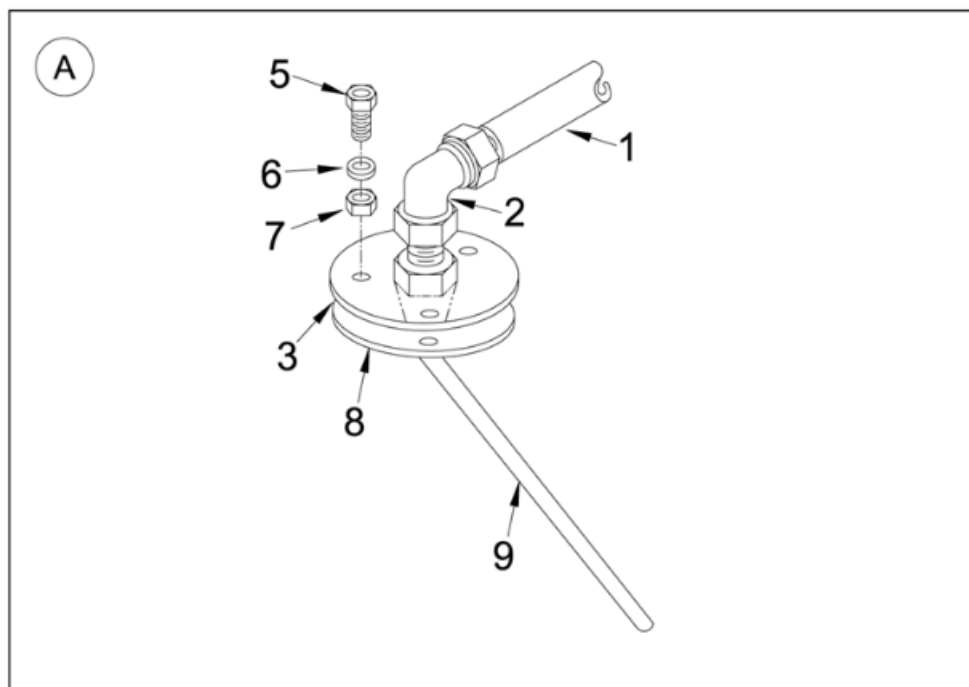
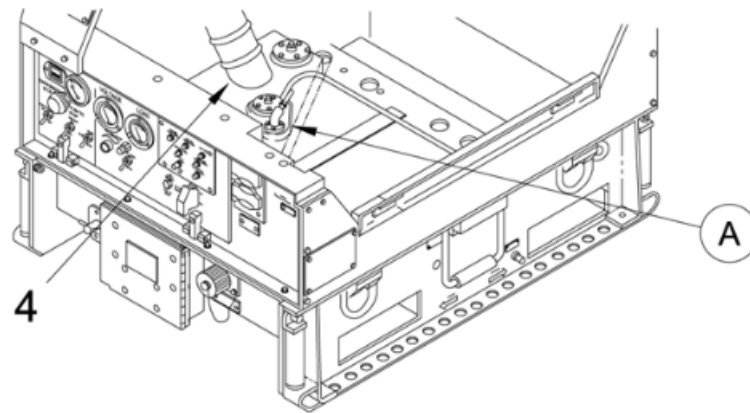


Figure 1. Fuel Tank Pickup Tube.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**PRIMARY FUEL PUMP: INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Materials/Parts

Sealant, Thread, Pipe, Loctite 565 (WP 0136, Table 1, Item 22)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect primary fuel pump (Figure 1, Item 11) for cracks, corrosion, evidence of leakage, and obvious damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.

END OF TASK**TEST**

1. Connect NATO slave receptacle. Connect battery cables. Place START/RUN/STOP switch in RUN position.
2. Using a multimeter, check voltage by inserting leads into back side of J12. Voltage reading should be 20-32 VDC.
3. If voltage is present remove and replace primary fuel pump (Figure 1, Item 11).

END OF TASK**REMOVE**

1. Shut generator down. Disconnect battery cables. Disconnect NATO slave receptacle.
2. Disconnect fuel pump electrical plug (Figure 1, Item 7).
3. Disconnect fuel hose (Figure 1, Item 1) from fuel filter (Figure 1, Item 2) by loosening clamp (Figure 1, Item 3). Remove filter from fuel pump (Figure 1, Item 11).
4. Disconnect fuel hose (Figure 1, Item 4) from fitting (Figure 1, Item 6) by loosening clamp (Figure 1, Item 5). Remove fitting (Figure 1, Item 6) from fuel pump (Figure 1, Item 11).

REMOVE – CONTINUED

5. Remove fuel pump (Figure 1, Item 11) from enclosure assembly wall by removing screws (Figure 1, Item 8), lockwashers (Figure 1, Item 9), and washers (Figure 1, Item 10).

END OF TASK**REPLACE**

1. Apply a thin continuous bead of sealant compound (Loctite 565, WP 0136, Table 1) to threads of fuel filter (Figure 1, Item 2) and fitting (Figure 1, Item 6). Replace fuel filter (Figure 1, Item 2) and fitting (Figure 1, Item 6) on fuel pump (Figure 1, Item 11).
2. Install fuel pump (Figure 1, Item 11) to wall of enclosure. Secure using screws (Figure 1, Item 8), lockwashers (Figure 1, Item 9), and washers (Figure 1, Item 10).
3. Connect fuel hoses (Figure 1, Item 1) to fuel filter (Figure 1, Item 2) and fitting (Figure 1, Item 6). Tighten clamps (Figure 1, Item 3).
4. Connect fuel pump electrical plug (Figure 1, Item 7).
5. Close main access cover and lock in place using latches.

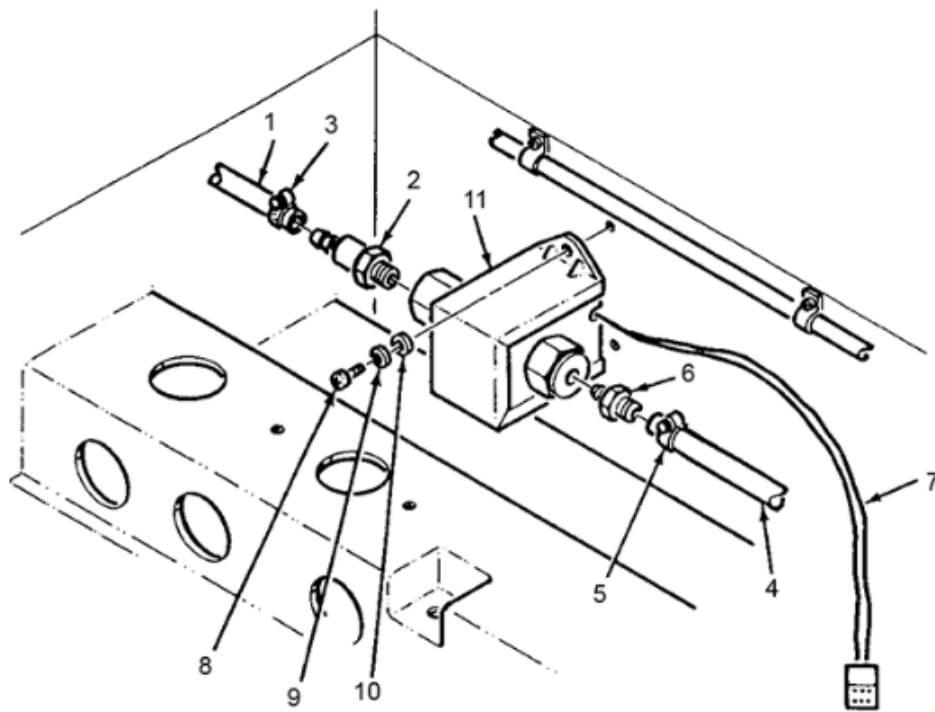


Figure 1. Primary Fuel Pump.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**AUXILIARY FUEL PUMP: INSPECT, TEST, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

References

WP 0058

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Materials/Parts

Sealant, Thread, Pipe, Loctite 565 (WP 0136, Table 1, Item 22)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect auxiliary fuel pump (Figure 1, Item 7) and fuel strainer for cracks, corrosion, evidence of leakage, and obvious damage.
3. Inspect fuel hoses for cuts, cracks, or other damage.
4. Inspect fuel fittings for crossed, stripped, or damaged threads.
5. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.

END OF TASK**TEST**

1. Disconnect J12 from P12 at primary fuel pump (WP 0058, Figure 1, Item 11).
2. Disconnect J9 from P9 at auxiliary fuel pump (Figure 1, Item 7).
3. Connect J9 to P12 at auxiliary fuel pump, feeding P12 behind engine.
4. Place START/RUN/STOP switch in RUN position.
5. Listen for clicking sound at fuel pump.
6. If no clicking sound is heard at the auxiliary fuel pump, remove and replace the auxiliary fuel pump.

END OF TASK**REMOVE**

1. Disconnect plug to auxiliary fuel pump (Figure 1, Item 7) electrical wires (Figure 1, Item 18).

REMOVE – CONTINUED

2. Disconnect fuel hose (Figure 1, Item 1) from elbow (Figure 1, Item 12) by loosening clamp (Figure 1, Item 2).
3. Disconnect fuel hose (Figure 1, Item 4) from fuel strainer (Figure 1, Item 6) by loosening clamp (Figure 1, Item 5).
4. Remove auxiliary fuel pump (Figure 1, Item 7) from fill pocket (Figure 1, Item 8) by removing screws (Figure 1, Item 9), washers (Figure 1, Item 10), and locknuts (Figure 1, Item 11).
5. Remove elbow (Figure 1, Item 12) from auxiliary fuel pump (Figure 1, Item 7). Remove fuel strainer (Figure 1, Item 6).
6. Disconnect fuel hose (Figure 1, Item 4) from fitting (Figure 1, Item 13) by loosening clamp (Figure 1, Item 5).
7. Remove fitting (Figure 1, Item 13) from elbow (Figure 1, Item 14). Remove cap (Figure 1, Item 17), nut (Figure 1, Item 16), washer (Figure 1, Item 15), and elbow (Figure 1, Item 14) from fill pocket (Figure 1, Item 8).

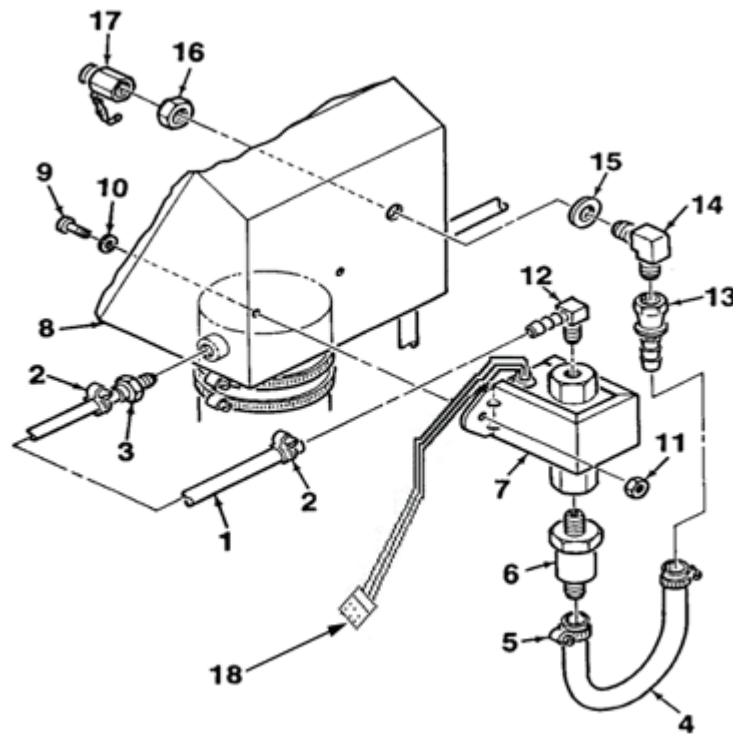


Figure 1. Auxiliary Fuel Pump.

END OF TASK**REPLACE****CAUTION**

The THAAD Launcher system requires installation and replacement of Electrical Fuel Pump, PN 00-24002-2, per AMCOM-GMAM-16-004, dated February 2016. Failure to use the proper Auxiliary Fuel Pump for the THAAD system will result in high component failure rate for 3kW Tactical Quiet Generators (TGQ) used on THAAD systems.

REPLACE – CONTINUED**CAUTION**

The Auxiliary Fuel Pump, PN 00-24002-2, is NOT interchangeable with the Main Fuel Pump on the 3kW TQG. Use of Fuel Pump, PN 00-24002-2, in the main pump location will cause damage to the generator.

1. Apply a thin continuous bead of sealant compound Loctite 565, (WP 0136, Table 1) to threads of all fittings prior to installation.
2. Replace elbow (Figure 1, Item 14), washer (Figure 1, Item 15), nut (Figure 1, Item 16), and cap (Figure 1, Item 17) onto fill pocket (Figure 1, Item 8). Connect fitting (Figure 1, Item 13) to elbow (Figure 1, Item 14).
3. Replace elbow (Figure 1, Item 14) and fuel strainer (Figure 1, Item 6) in auxiliary fuel pump (Figure 1, Item 7).
4. Install auxiliary fuel pump (Figure 1, Item 7) to fill pocket (Figure 1, Item 8) and secure using screws (Figure 1, Item 9), washers (Figure 1, Item 10), and locknuts (11).
5. Connect fuel hose (Figure 1, Item 4) to fuel strainer (Figure 1, Item 6) and fitting (Figure 1, Item 13). Secure by tightening clamps (Figure 1, Item 5).
6. Connect fuel hose (Figure 1, Item 1) to elbow (Figure 1, Item 12). Secure by tightening clamp (Figure 1, Item 2).
7. Connect fuel pump electrical plug (Figure 1, Item 18).
8. Close main access cover and lock in place using latches.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**FUEL FILTER/WATER SEPARATOR: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0025
WP 0062

Materials/Parts

Sealant, Thread, Pipe, Loctite 565 (WP 0136, Table 1, Item 22)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect fuel filter/water separator (Figure 1, Item 5) for cracks, corrosion, evidence of leakage, and obvious damage.
3. Inspect fuel hoses for cuts, cracks, or other damage.

END OF TASK**REMOVE**

1. Open fuel filter/water separator drain valve (Figure 1, Item 13) and drain fluid through hose (Figure 1, Item 4). Close valve (Figure 1, Item 13) and disconnect hose (Figure 1, Item 4).
2. Disconnect fuel hoses (Figure 1, Item 1) from elbows (Figure 1, Item 3) by loosening hose clamps (Figure 1, Item 2).
3. Remove elbows (Figure 1, Item 3) from fuel filter/water separator (Figure 1, Item 5).
4. Remove fuel filter/water separator (Figure 1, Item 5) from bracket (Figure 1, Item 6) by removing screws (Figure 1, Item 7), washers (Figure 1, Item 8), and locknuts (Figure 1, Item 9).
5. If removal of bracket (Figure 1, Item 6) is required, remove air inlet cover (WP 0062).
6. Remove bracket (Figure 1, Item 6) from enclosure by removing screws (Figure 1, Item 10), washers (Figure 1, Item 11), and locknuts (Figure 1, Item 12).

END OF TASK**REPLACE**

1. Apply Loctite 565 sealant (WP 0136, Table 1) to threads of screws (Figure 1, Item 7). Replace fuel filter/water separator (Figure 1, Item 5) on bracket (Figure 1, Item 6) using screws (Figure 1, Item 7), washers (Figure 1, Item 8), and locknuts (Figure 1, Item 9).

REPLACE – CONTINUED

2. Apply a thin continuous bead of Locktite 565 sealant (WP 0136, Table 1) to threads of elbows (Figure 1, Item 3). Replace elbows (Figure 1, Item 3) in fuel filter/water separator (Figure 1, Item 5).
3. Install bracket (Figure 1, Item 6) to main frame and housing. Secure using screws (Figure 1, Item 10), washers (Figure 1, Item 11), and locknuts (Figure 1, Item 12).
4. Connect fuel hoses (Figure 1, Item 1) to elbows (Figure 1, Item 3) and secure by tightening hose clamps (Figure 1, Item 2).
5. Connect drain hose (Figure 1, Item 4) to fuel filter/water separator (Figure 1, Item 5). Close drain valve (Figure 1, Item 13).
6. Reconnect battery (WP 0025).
7. Close main access cover and lock in place using latches.
8. Place START/RUN/STOP switch in RUN position until fuel bowl is filled. Check for evidence of leaks.

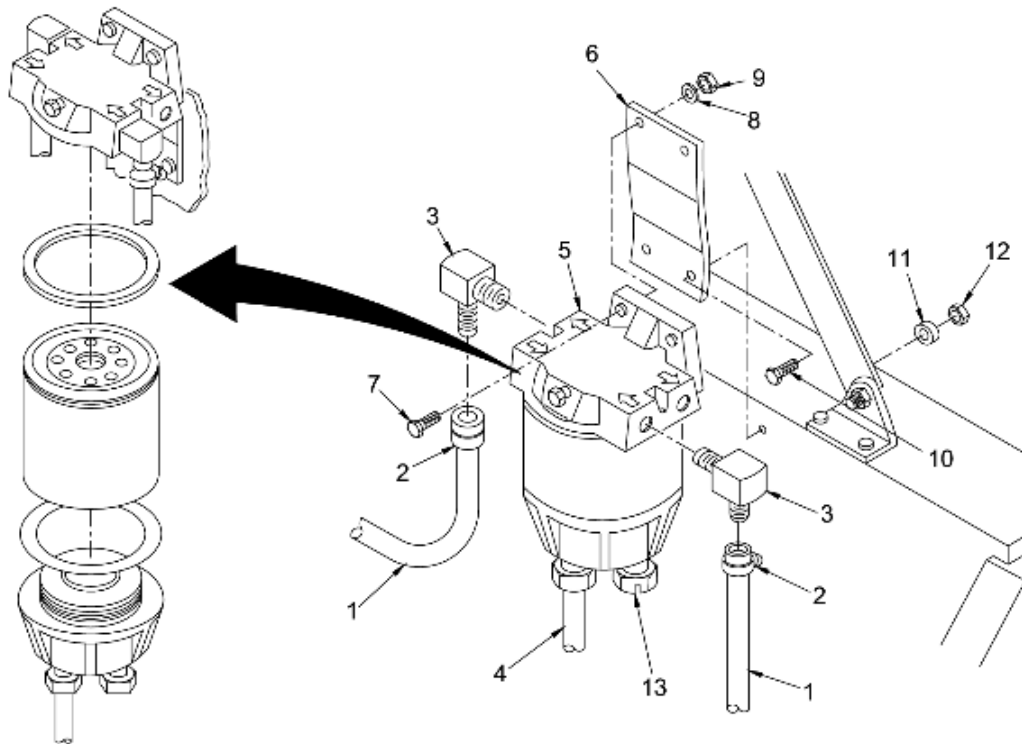


Figure 1. Fuel Filter/Water Separator.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
AIR CLEANER ASSEMBLY: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Materials/Parts

Filter Element (Air) (WP 0136, Table 1, Item 7)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)

Battery cables disconnected (WP 0026)

Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Inspect air filter (Figure 1, Item 5) for dirt and debris.
2. If air filter is dirty, replace.

END OF TASK**REMOVE**

1. Unlock main access cover latches and lift cover to open.
2. Remove cover (Figure 1, Item 1) from air filter housing (Figure 1, Item 2) by removing wing nut (Figure 1, Item 3) and washer (Figure 1, Item 4).
3. Remove air filter (Figure 1, Item 5) from housing (Figure 1, Item 2).

END OF TASK**REPLACE**

1. Ensure all dirt and debris are removed from housing (Figure 1, Item 2) before replacing air filter element.
2. Replace new filter (Figure 1, Item 5) into housing (Figure 1, Item 2).
3. Replace cover (Figure 1, Item 1) on housing using wing nut (Figure 1, Item 3) and washer (Figure 1, Item 4).
4. Close main access cover and lock in place using latches.
5. On engine configuration L70N6EZ0T9EAFD, rotate access cover (Figure 1, Item 1), intake case (Figure 1, Item 2), adapter (Figure 1, Item 7), and heater mounting screws (Figure 1, Item 8) counter clockwise 90 degrees.

CAUTION

Failure to rotate air filter assembly parts on L70N6EZ0T9EAFD will result in improper fit, and may cause damage to the equipment.

REPLACE – CONTINUED

CAUTION

Do not rotate the heating element (Figure 1, Item 9) for either engine configuration. If rotated, the stud and nuts may short, causing damage to the equipment.

NOTE

The top configuration represents placement of air filter on engine L70AE-DEGFR. The bottom configuration represents placement of air filter on engine L70N6EZ0T9EAFD.

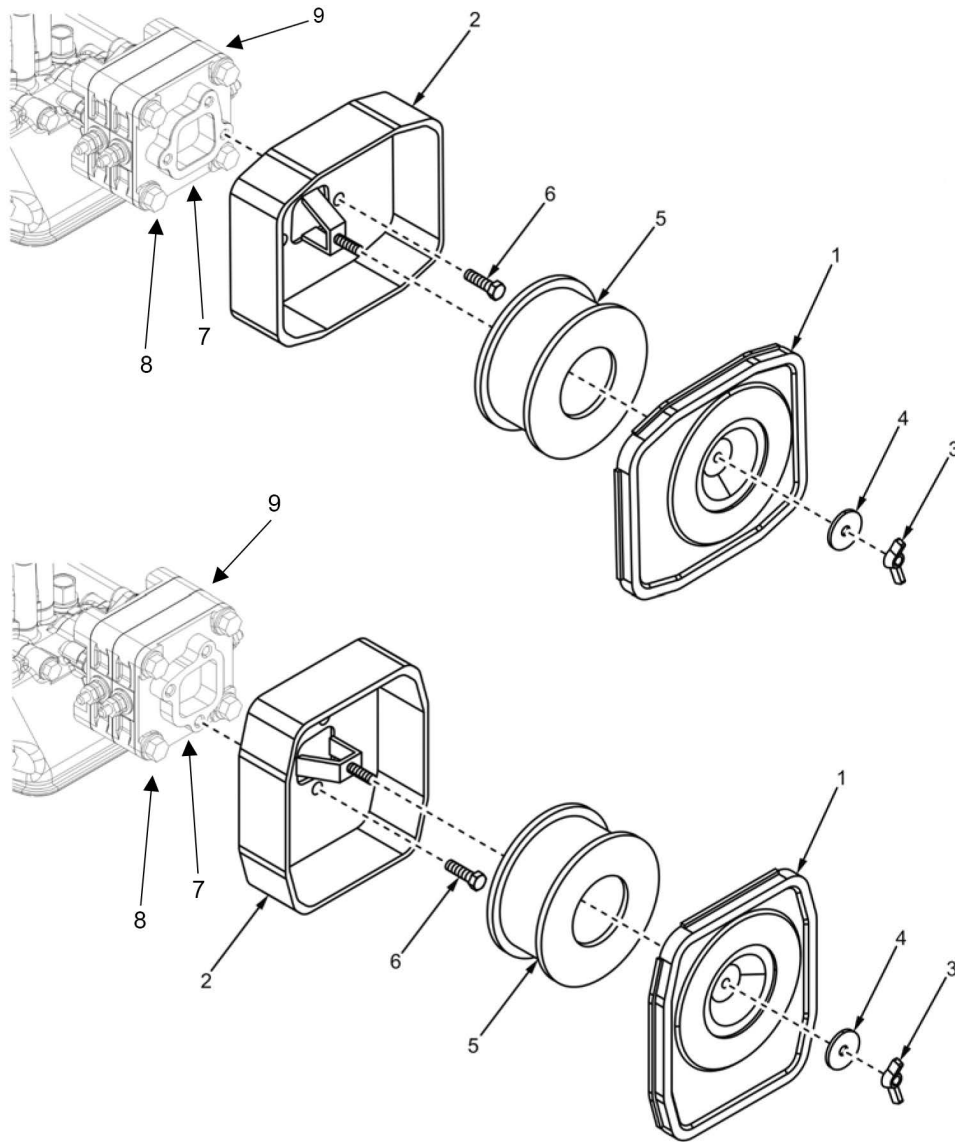


Figure 1. Air Cleaner Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**FRAME AND HOUSING ASSEMBLY: INSPECT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect lifting handles (Figure 1, Item 1) for corrosion and obvious damage.
2. Inspect lifting handle (Figure 1, Item 1) bracket for cracks or deformation. Replace handle if damaged.
3. Inspect main access cover (Figure 1, Item 2) for corrosion, cracks, dents, scratches, or other obvious damage.
4. Inspect air inlet grate (Figure 1, Item 3) for damage.
5. Inspect main access cover latches (Figure 1, Item 4) for corrosion and damage. Check for smooth operation, free of binding.
6. Inspect main access cover gaskets for cuts, tears, deterioration, or other damage. Ensure insulation is clean, free of dirt, grime, or grease.
7. Inspect main access cover identification and caution plates (Figure 1, Item 5) for legibility and security of attachment.
8. Inspect frame and housing panels (Figure 1, Item 6) for corrosion, cracks, dents, scratches, or other obvious damage. Inspect fuel fill pocket for evidence of fuel leakage.
9. Inspect acoustic insulation for cuts, tears, rips, or deterioration.
10. Inspect for corrosion, dents, grease, grime, general deterioration, and other visible damage. Check for need to repaint.

INSPECT – CONTINUED

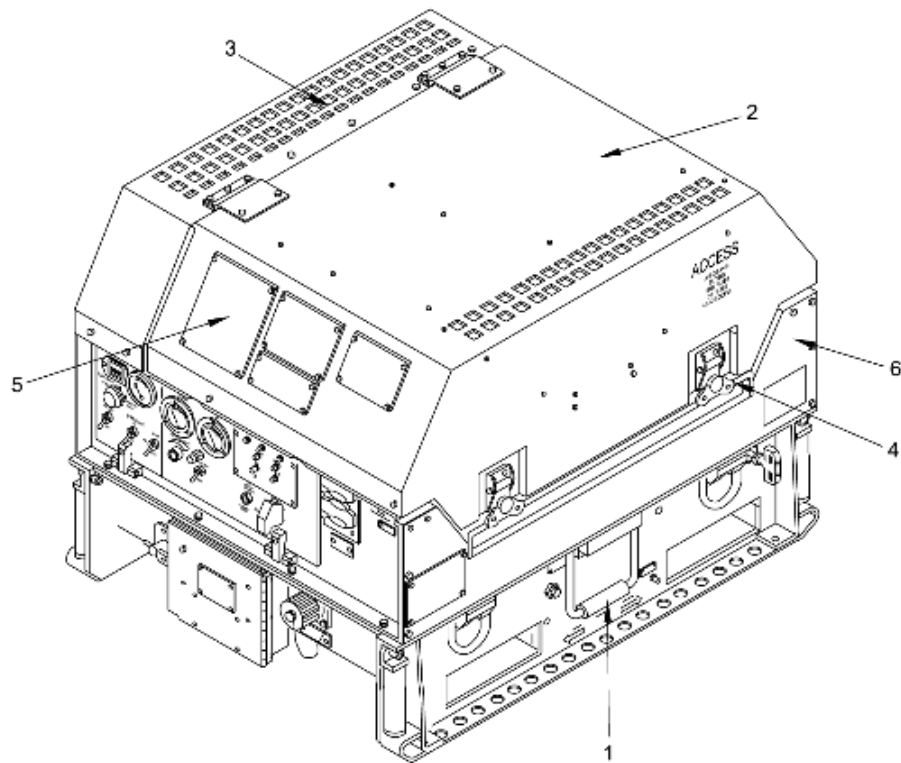


Figure 1. Frame and Housing Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
MAIN ACCESS COVER: INSPECT, TEST, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
 Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

Personnel Required

Power Generation Equipment Repairer 91D (1)

References

WP 0028

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Inspect main access cover (Figure 1, Item 1) for corrosion, cracks, dents, scratches, or other obvious damage. Inspect air inlet grate for damage.
2. Inspect main access cover latches (Figure 1, Item 2) for corrosion and damage. Check for smooth operation, free of binding.
3. Inspect acoustic insulation for cuts, tears, deterioration, or other damage. Ensure insulation is clean, free of dirt, grime, or grease.
4. Inspect data plates for legibility and security of attachment.

END OF TASK**TEST**

1. To test for water leakage, unlock main access cover latches (Figure 1, Item 28) and lift main access cover (Figure 1, Item 1) to open.
2. Cover Frequency Converter (A8) (WP 0028) with plastic.
3. Close main access cover latches (Figure 1, Item 28) and lock in place.
4. Spray water (low pressure) over main access cover (Figure 1, Item 1).
5. Wipe exterior of main access cover (Figure 1, Item 1) to remove water.

CAUTION

After power washing generator set, allow it to dry out thoroughly. DO NOT START GENERATOR SET UNLESS IT HAS COMPLETELY DRIED AFTER WASHING.

6. Unlock main access cover latches (Figure 1, Item 28) and lift main access cover (Figure 1, Item 1) to open.
7. Inspect for new signs of water.
8. If water is present, dry inside of generator thoroughly and replace gaskets (Figure 1, Item 59).

END OF TASK**REMOVE**

1. Unlock generator set main access cover latches (Figure 1, Item 2) and lift main access cover (Figure 1, Item 1) to open.
2. Disconnect electrical plug (Figure 1, Item 22) from fan (Figure 1, Item 23). Remove wire clamps (Figure 1, Item 24) by removing screws (Figure 1, Item 25), lockwashers (Figure 1, Item 26), and washers (Figure 1, Item 27).
3. Release two main access cover supports (Figure 1, Item 3) from main access cover (Figure 1, Item 1) by removing screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and washers (Figure 1, Item 6).
4. Remove main access cover hinges (Figure 1, Items 7, 11) from main access cover (Figure 1, Item 1) by removing screws (Figure 1, Item 12), washers (Figure 1, Item 13), and locknuts (Figure 1, Item 14).
5. Lift main access cover (Figure 1, Item 1) off generator set and place on a clean work surface for further maintenance.
6. If hinges need replacing, remove hinges (Figure 1, Items 7, 11) from left side panel by removing screws (Figure 1, Item 8), washers (Figure 1, Item 9), and locknuts (Figure 1, Item 10).
7. Remove swivel joints (Figure 1, Item 15) from main access cover supports (Figure 1, Item 3) by removing washers (Figure 1, Item 16) and locknuts (Figure 1, Item 17).
8. If right-side main access cover support (Figure 1, Item 3) must be removed, remove front panel.
9. Remove main access cover supports (Figure 1, Item 3) by removing screws (Figure 1, Item 18), washers (Figure 1, Item 19), and locknuts (Figure 1, Item 20). Remove spacers (Figure 1, Item 21).
10. Remove main access cover latches (Figure 1, Item 28) from main access cover (Figure 1, Item 1) by removing screws (Figure 1, Item 29), washers (Figure 1, Item 30), and locknuts (Figure 1, Item 31).
11. Remove keeper plates (Figure 1, Item 32) from right side panel by removing screws (Figure 1, Item 33), washers (Figure 1, Item 34), and locknuts (Figure 1, Item 35).
12. Remove air outlet panel (Figure 1, Item 36) from underside of main access cover (Figure 1, Item 1) by removing screws (Figure 1, Item 37), washers (Figure 1, Item 38), and locknuts (Figure 1, Item 39).
13. Remove air louver (Figure 1, Item 40) from air outlet panel (Figure 1, Item 36) by removing screws (Figure 1, Item 41), lockwashers (Figure 1, Item 42), and washers (Figure 1, Item 43).
14. Remove laminated cards (Figure 1, Item 44) from document tray (Figure 1, Item 48) by removing screw (Figure 1, Item 45), lockwasher (Figure 1, Item 46), and washer (Figure 1, Item 47).
15. Remove document tray (Figure 1, Item 48) from main access cover (Figure 1, Item 1) by removing screws (Figure 1, Item 49), lockwashers (Figure 1, Item 50), and washers (Figure 1, Item 51). Remove insulation (Figure 1, Item 53).
16. Remove spacers (Figure 1, Item 52) from main access cover (Figure 1, Item 1) by removing screws (Figure 1, Item 54), lockwashers (Figure 1, Item 55), and washers (Figure 1, Item 56).
17. Inspect gaskets and seals for deterioration or other damage.

END OF TASK**REPLACE**

1. Replace spacers (Figure 1, Item 52) on underside of main access cover (Figure 1, Item 1) using screws (Figure 1, Item 54), lockwashers (Figure 1, Item 55), and washers (Figure 1, Item 56).

REPLACE – CONTINUED

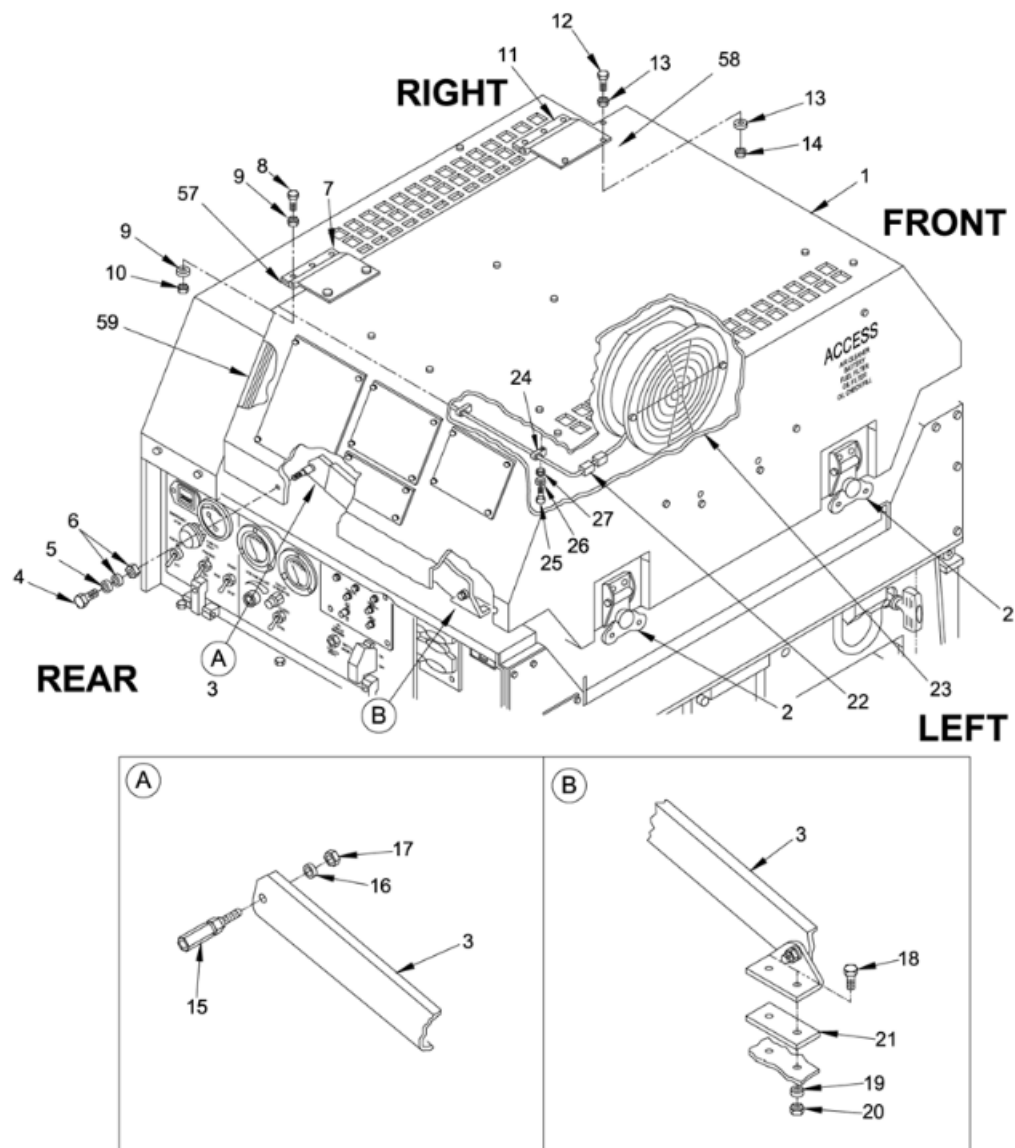
2. Replace insulation (Figure 1, Item 53) and document tray (Figure 1, Item 48) over spacers (Figure 1, Item 52). Secure using screws (Figure 1, Item 49), lockwashers (Figure 1, Item 50), and washers (Figure 1, Item 51).
3. Secure laminated cards (Figure 1, Item 44) to document tray (Figure 1, Item 48) using screw (Figure 1, Item 45), lockwasher (Figure 1, Item 46), and washer (Figure 1, Item 47).
4. Replace air louver (Figure 1, Item 40) on air outlet panel (Figure 1, Item 36) using screws (Figure 1, Item 41), lockwashers (Figure 1, Item 42), and washers (Figure 1, Item 43).
5. Replace air outlet panel (Figure 1, Item 36) to underside of main access cover (Figure 1, Item 1) using screws (Figure 1, Item 37), washers (Figure 1, Item 38), and locknuts (Figure 1, Item 39).
6. Replace keeper plates (Figure 1, Item 32) on right-side panel using screws (Figure 1, Item 33), washers (Figure 1, Item 34), and locknuts (Figure 1, Item 35).
7. Replace main access cover latches (Figure 1, Item 28) on main access cover (Figure 1, Item 1) using screws (Figure 1, Item 29), washers (Figure 1, Item 30), and locknuts (Figure 1, Item 31).
8. Replace main access cover supports (Figure 1, Item 3) to skid base using screws (Figure 1, Item 18), washers (Figure 1, Item 19), locknuts (Figure 1, Item 20), and spacers (Figure 1, Item 21).
9. Replace swivel joints (Figure 1, Item 15) on cover supports (Figure 1, Item 3) using washers (Figure 1, Item 16) and locknuts (Figure 1, Item 17).

NOTE

Be sure to check hinge gaskets (Figure 1, Items 57, 58) and cover gasket (Figure 1, Item 59) for evidence of deterioration or damage. Replace as required. The wide or bubble portion of the gasket (Figure 1, Item 59) should be installed toward the hinge side of the cover (Figure 1, Item 1).

10. Secure main access cover hinges (Figure 1, Items 7, 11) to left-side panel using screws (Figure 1, Item 8), washers (Figure 1, Item 9), and locknuts (Figure 1, Item 10).
11. Lift up main access cover (Figure 1, Item 1) and place on generator set, aligning hinge mounting holes. Replace hinges on main access cover (Figure 1, Item 1) using screws (Figure 1, Item 12), washers (Figure 1, Item 13), and nuts (Figure 1, Item 14).
12. Attach main access cover supports (Figure 1, Item 3) to main access cover (Figure 1, Item 1) using screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), and washers (Figure 1, Item 6).
13. Connect electrical plug (Figure 1, Item 22) to fan (Figure 1, Item 23). Secure electrical wiring to inside of main access cover (Figure 1, Item 1) using wire clamps (Figure 1, Item 24), screws (Figure 1, Item 25), washers (Figure 1, Item 26), and lockwashers (Figure 1, Item 27).
14. Close main access cover (Figure 1, Item 1) and lock latches (Figure 1, Item 2).

REPLACE – CONTINUED



REPLACE – CONTINUED

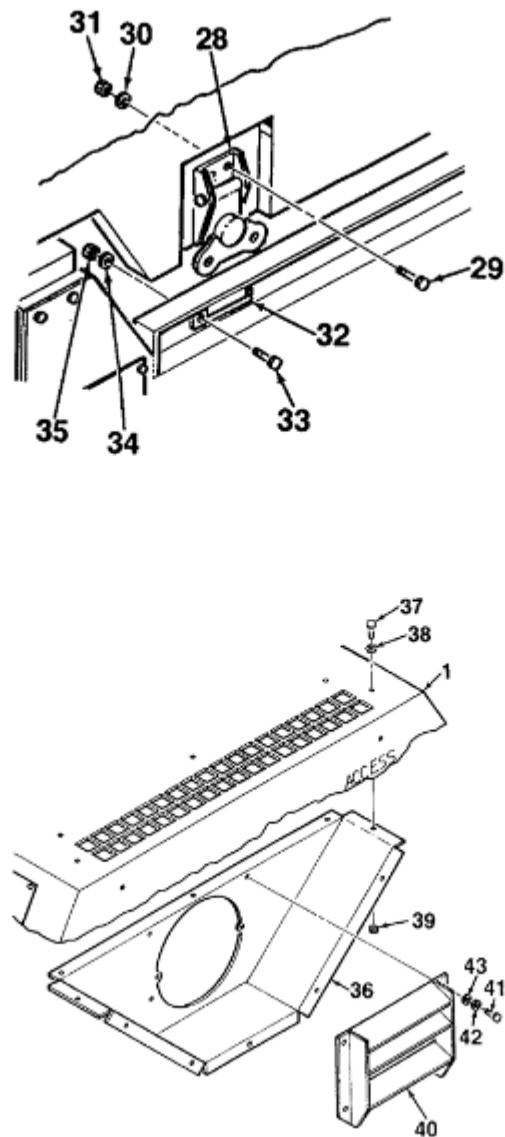


Figure 2. Main Access Cover (Access Cover Latch and Air Louver).

REPLACE – CONTINUED

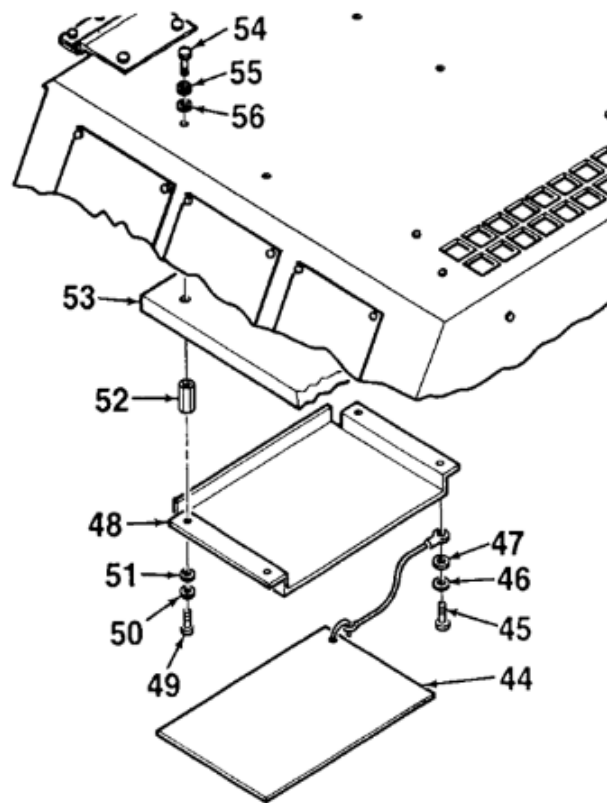


Figure 3. Main Access Cover (Insulation, Document Tray, and Laminated Cards).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRAME AND HOUSING PANELS: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)
 Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

References - cont'd

WP 0063
 WP 0066
 WP 0075

Materials/Parts

Sealant, RTV (WP 0136, Table 1, Item 20)

Personnel Required

Power Generation Equipment Repairer 91D (1)

References

WP 0026
 WP 0027
 WP 0028
 WP 0030
 WP 0051
 WP 0052
 WP 0058
 WP 0059
 WP 0060
 WP 0062

Equipment Condition

Generator set shut down (WP 0005)
 Battery removed (WP 0025)
 Battery cables disconnected (WP 0026)
 DC magnetic contactors removed (WP 0027)
 Frequency Converter (A8) removed (WP 0028)
 Control box removed (WP 0030)
 HI/LO temperature cooling fan removed (WP 0051)
 HI/LO temperature switch removed (WP 0052)
 Fuel pump removed (WP 0058)
 Primary fuel line disconnected (WP 0058)
 Fuel fill pocket removed (WP 0059)
 Auxiliary fuel line disconnected (WP 0059)
 Main access cover removed (WP 0062)
 Cable disconnected from NATO Slave Receptacle (WP 0066)
 Muffler disengaged from left-side panel (WP 0075)

INSPECT

1. Inspect frame and housing panels (Figure 1, Item 1) for corrosion, cracks, dents, scratches, or other obvious damage. Inspect fuel fill pocket (WP 0059) for evidence of fuel leakage.
2. Inspect acoustic insulation (Figure 1, Item 42) for cuts, tears, rips, or deterioration.

END OF TASK**REMOVE**

1. Remove screws (Figure 1, Item 2), washers (Figure 1, Item 3), and locknuts (Figure 1, Item 4) to release left-side panel (Figure 1, Item 1) from air inlet cover (Figure 1, Item 20).
2. Remove screws (Figure 1, Item 5), washers (Figure 1, Item 6), and locknuts (Figure 1, Item 7). Remove screw (Figure 1, Item 8), washers (Figure 1, Item 9), and locknut (Figure 1, Item 10).
3. Remove screws (Figure 1, Items 11, 12) to release left side panel (Figure 1, Item 1) from skid base.
4. Remove screws (Figure 1, Item 13), washers (Figure 1, Item 14), and locknuts (Figure 1, Item 15) to release left-side panel (Figure 1, Item 1) from bracket (Figure 1, Item 16). Carefully lift left-side panel (Figure 1, Item 1) off skid base.

REMOVE – CONTINUED

5. Remove angle bracket (Figure 1, Item 16) from air inlet panel (Figure 1, Item 25) by removing screws (Figure 1, Item 17), washers (Figure 1, Item 18), and locknuts (19).
6. Remove air inlet cover (Figure 1, Item 20) from air inlet panel (Figure 1, Item 25) by removing screws (Figure 1, Item 21), lockwashers (Figure 1, Item 22), and washers (Figure 1, Item 23) from captive nuts (Figure 1, Item 24). Remove acoustic insulation (Figure 1, Item 33).
7. Remove air inlet panel (Figure 1, Item 25) from skid base by removing screws (Figure 1, Item 26), washers (Figure 1, Item 27), and locknuts (Figure 1, Item 28), and by removing screws (Figure 1, Item 29), washers (Figure 1, Item 30), lockwashers (Figure 1, Item 31), and captive nuts (Figure 1, Item 32).
8. Remove air outlet panel (Figure 1, Item 34) from left-side panel (Figure 1, Item 1) by removing screws (Figure 1, Item 35), washers (Figure 1, Item 36), and locknuts (Figure 1, Item 37).
9. Remove louver (Figure 1, Item 38) from air outlet panel (Figure 1, Item 34) by removing screws (Figure 1, Item 39), lockwashers (Figure 1, Item 40), and washers (Figure 1, Item 41).
10. Remove acoustic insulation (Figure 1, Item 42).

END OF TASK**REPLACE**

1. Replace acoustic insulation (Figure 1, Item 42).
2. Apply RTV sealant to top edge of louver (Figure 1, Item 38). Replace louver (Figure 1, Item 38) on air outlet panel (Figure 1, Item 34) using screws (Figure 1, Item 39), lockwashers (Figure 1, Item 40), and washers (Figure 1, Item 41).
3. Apply RTV sealant to flange of air outlet panel (Figure 1, Item 34) that aligns with left-side panel (Figure 1, Item 1). Replace air outlet panel (Figure 1, Item 34) onto left-side panel (Figure 1, Item 1) using screws (Figure 1, Item 35), washers (Figure 1, Item 36), and locknuts (Figure 1, Item 37).
4. Replace acoustic insulation (Figure 1, Item 33). Replace air inlet cover (Figure 1, Item 20) on air inlet panel (Figure 1, Item 25) using screws (Figure 1, Item 21), lockwashers (Figure 1, Item 22), washers (Figure 1, Item 23), and captive nuts (Figure 1, Item 24).
5. Replace angle bracket (Figure 1, Item 16) on air inlet panel (Figure 1, Item 25) using screws (Figure 1, Item 17), washers (Figure 1, Item 18), and locknuts (Figure 1, Item 19).
6. Replace air inlet panel (Figure 1, Item 25) on skid base using screws (Figure 1, Item 26), washers (Figure 1, Item 27), and locknuts (Figure 1, Item 28), and by using screws (Figure 1, Item 29), washers (Figure 1, Item 30), lockwashers (Figure 1, Item 31), and captive nuts (Figure 1, Item 32).
7. Position left-side panel (Figure 1, Item 1) on skid base. Secure using screws (Figure 1, Item 5), washers (Figure 1, Item 6), and locknuts (Figure 1, Item 7). Replace screw (Figure 1, Item 8), washers (Figure 1, Item 9), and locknut (Figure 1, Item 10). Replace screws (Figure 1, Items 11, 12).
8. Attach left-side panel (Figure 1, Item 1) to air inlet panel (Figure 1, Item 20) using screws (Figure 1, Item 2), washers (Figure 1, Item 3), and locknuts (Figure 1, Item 4).
9. Attach left-side panel (Figure 1, Item 1) to bracket (Figure 1, Item 16) using screws (Figure 1, Item 13), washers (Figure 1, Item 14), and locknuts (Figure 1, Item 15).
10. Replace HI/LO temperature cooling fan and switch (WP 0051 and WP 0052).
11. Reconnect NATO slave receptacle (WP 0066).
12. Replace control box (WP 0030).
13. Replace main access cover (WP 0063).
14. Replace auxiliary and primary fuel pumps and fuel lines (WP 0059 and WP 0060).

REPLACE – CONTINUED

15. Replace DC magnetic contactors (WP 0027).
16. Replace Frequency Converter (A8) (WP 0028).
17. Replace muffler (WP 0075).
18. Replace fuel fill pocket (WP 0059).

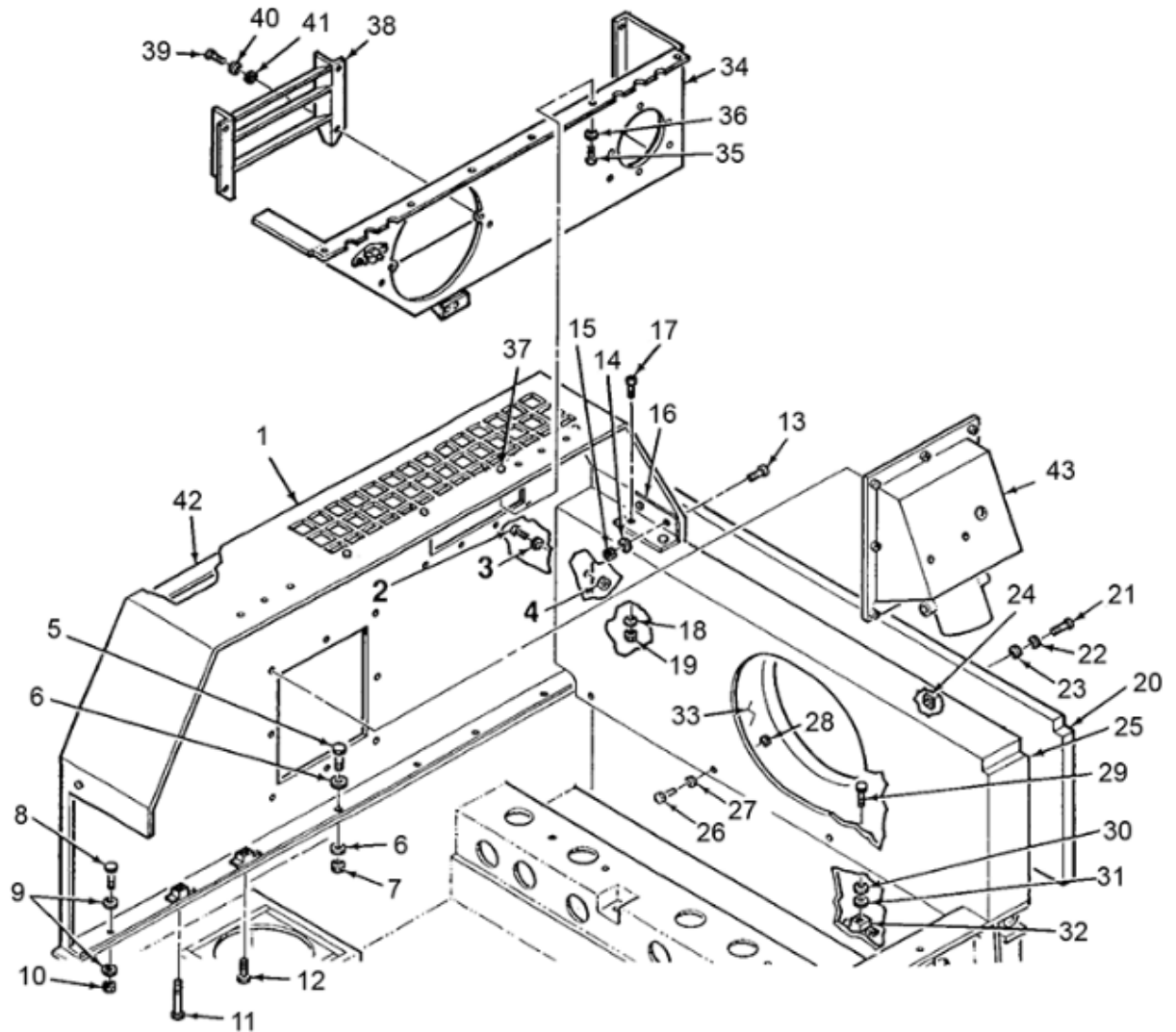


Figure 1. Frame and Housing Panels.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FRAME AND LIFTING HANDLES, LIFTING RINGS: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Inspect frame and lifting handles (Figure 1, Items 1 and 6) for corrosion and obvious damage.
2. Inspect lifting handle bracket for cracks or deformation. Replace handle if damaged.
3. Inspect frame for dents, cracks, grease, other obvious damage, and the need for paint.

END OF TASK**REMOVE**

1. Remove lifting handle (Figure 1, Item 1) from generator set frame by removing screw (Figure 1, Item 2), washers (Figure 1, Items 3 and 4), and locknut (Figure 1, Item 5).
2. Unlock main access cover latches and lift cover to open.
3. Remove lifting handle (Figure 1, Item 6) from frame by removing screws (Figure 1, Item 7), washers (Figure 1, Item 8), and locknuts (Figure 1, Item 9), and by removing screws (Figure 1, Item 10), washers (Figure 1, Item 11), and locknuts (Figure 1, Item 12).
4. Remove paint chips, grease, and other debris from frame. Prepare for paint, if necessary.

END OF TASK**REPLACE**

1. Replace lifting handle (Figure 1, Item 6) on frame using screws (Figure 1, Item 7), washers (Figure 1, Item 8), locknuts (Figure 1, Item 9), and by using screws (Figure 1, Item 10), washers (Figure 1, Item 11), and locknuts (Figure 1, Item 12).
2. Replace lifting handle (Figure 1, Item 1) on frame using screw (Figure 1, Item 2), washers (Figure 1, Items 3, 4), and locknut (Figure 1, Item 5).
3. Close main access cover and lock in place using latches.
4. Repaint frame, as necessary, to preserve integrity of system.

REPLACE – CONTINUED

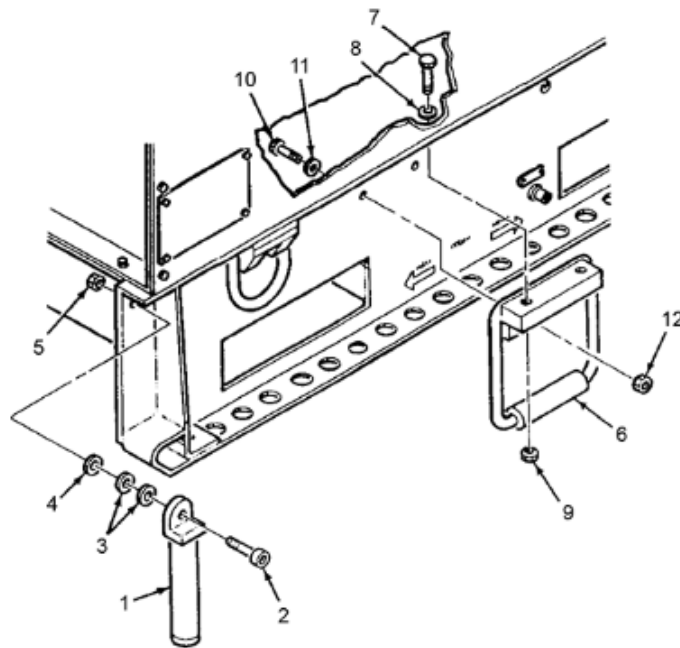


Figure 1. Frame and Lifting Handles.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**NATO SLAVE RECEPTACLE: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0026

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect NATO slave receptacle (Figure 1, Item 1) for corrosion, evidence of electrical short, and obvious damage. Check terminal connectors for damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure terminal lugs are securely attached.

END OF TASK**REMOVE**

1. Tag and disconnect electrical wiring from rear of NATO slave receptacle (Figure 1, Item 1).
2. Remove NATO slave receptacle (Figure 1, Item 1) and attached cap from generator set skid base by removing screws (Figure 1, Item 2), washers (Figure 1, Item 3), and nuts (Figure 1, Item 4).

END OF TASK**REPLACE**

1. Install NATO slave receptacle (Figure 1, Item 1) and attached cap to skid base. Secure using screws (Figure 1, Item 2), washers (Figure 1, Item 3), and nuts (Figure 1, Item 4).
2. Connect electrical wiring to rear of NATO slave receptacle (Figure 1, Item 1).
3. Reconnect battery cables (WP 0026).
4. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

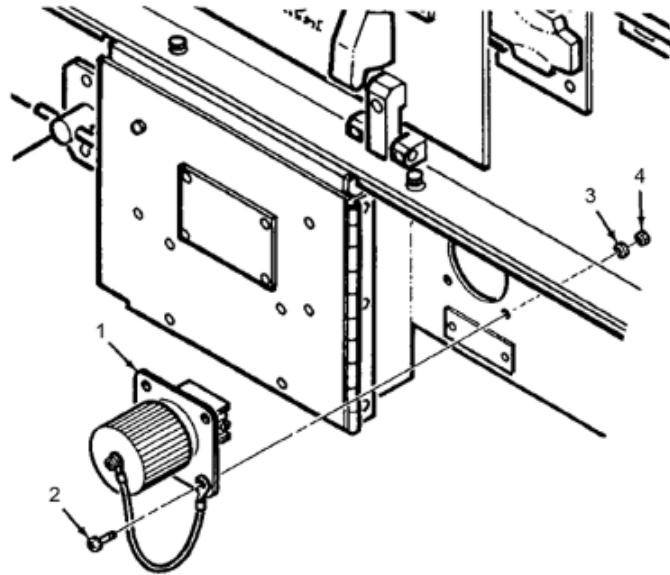


Figure 1. NATO Slave Receptacle.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**SKID BASE: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

Inspect frame and housing panels for corrosion, cracks, dents, scratches, or other obvious damage.

END OF TASK**REMOVE**

1. Remove locknuts (Figure 1, Item 1), washers (Figure 1, Item 2), and screws (Figure 1, Item 3) from all four sides of skid base assembly (Figure 1, Item 4).
2. Detach skid base assembly (Figure 1, Item 4) from enclosure assembly (Figure 1, Item 5).

END OF TASK**REPLACE**

1. Reattach skid base assembly (Figure 1, Item 4) to enclosure assembly (Figure 1, Item 5).
2. Replace screws (Figure 1, Item 3), washers (Figure 1, Item 2), and locknuts (Figure 1, Item 1) on all four sides of skid base assembly (Figure 1, Item 4).

REPLACE – CONTINUED

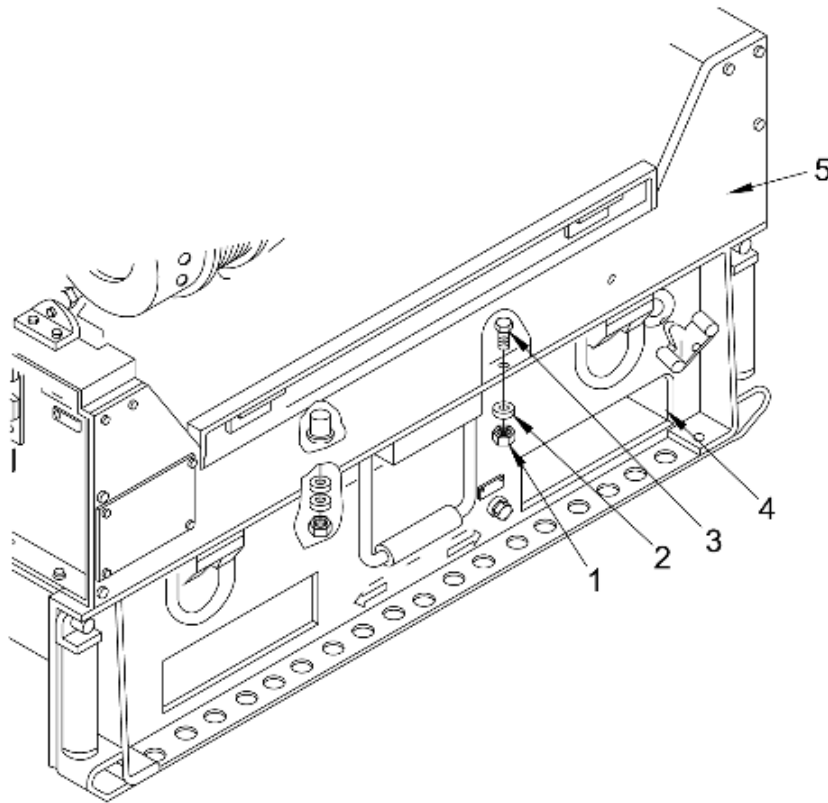


Figure 1. Skid Base.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**ID PLATES: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0136, Table 1, Item 2

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

Check ID plates for corrosion, damage, and wear.

END OF TASK**REMOVE****NOTE**

ID plates are attached to frame by rivets. ID Plate removal instructions are typical for all ID plates unless otherwise noted.

1. Remove four rivets (Figure 1, Item 1) from ID plate.
2. Remove ID plate.

END OF TASK**REPLACE**

1. Place new ID plate on generator set, lining up holes for rivets (Figure 1, Item 1).
2. Reattach ID plate with rivets (Figure 1, Item 1) (WP 0136, Table 1).

REPLACE – CONTINUED

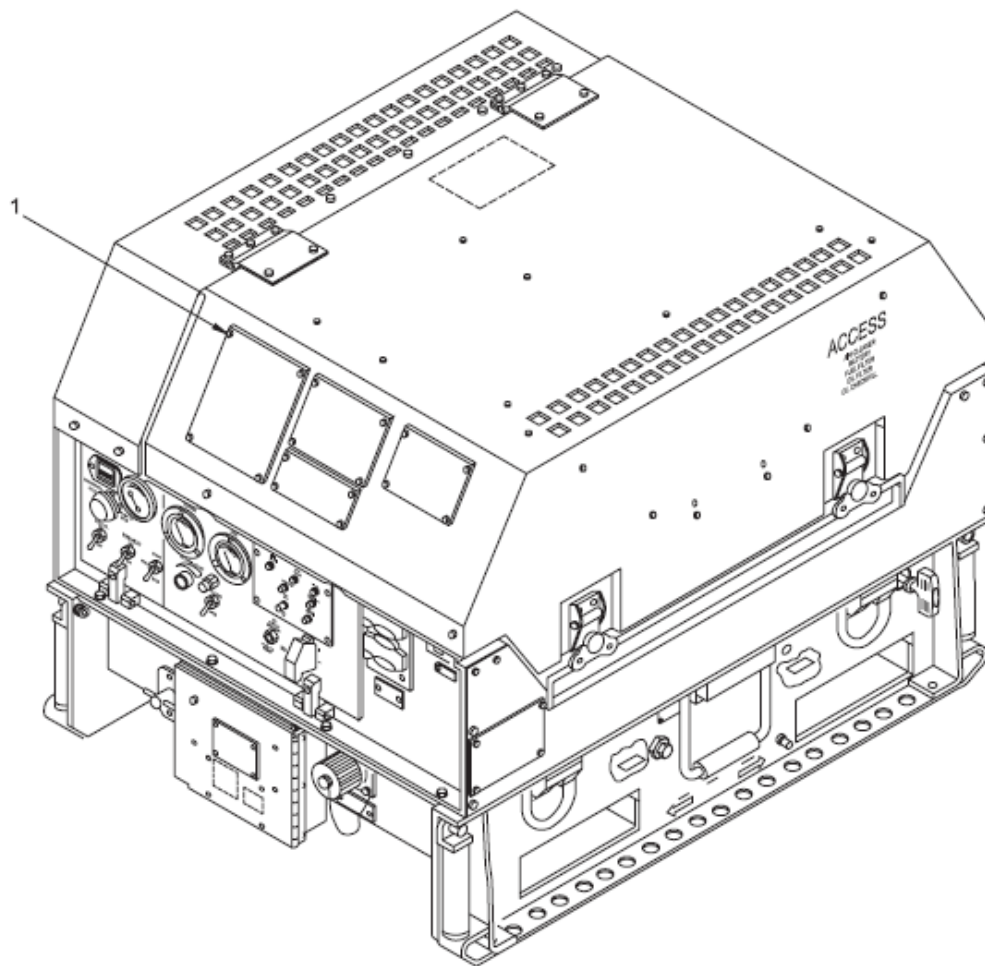


Figure 1. ID Plates.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
LUBRICATION SYSTEM: INSPECT, SERVICE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0016

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect oil drain hose (Figure 1, Item 3) for cuts, cracks, deterioration, or other damage. Inspect for evidence of leakage.
3. Inspect drain valve (Figure 1, Item 1) for clogging or obstruction. Ensure valve handle operates smoothly and that valve shuts completely.
4. Inspect elbow (Figure 1, Item 5), fitting (Figure 1, Item 2), and plug (Figure 1, Item 4) for damage. Inspect for crossed, stripped, or damaged threads.
5. Inspect engine temperature switch for corrosion, evidence of electrical short, and obvious damage.
6. Inspect electrical wiring to engine temperature switch for cuts, crimps, bare wire, or other damage. Ensure plug is securely attached.
7. Inspect oil pressure switch for corrosion, evidence of electrical short, and obvious damage.
8. Inspect electrical wiring to oil pressure switch for cuts, crimps, bare wire, or other damage.

END OF TASK**SERVICE****NOTE**

Services include scheduled as well as preventive maintenance.

Service in accordance with WP 0016, Table 1.

SERVICE – CONTINUED

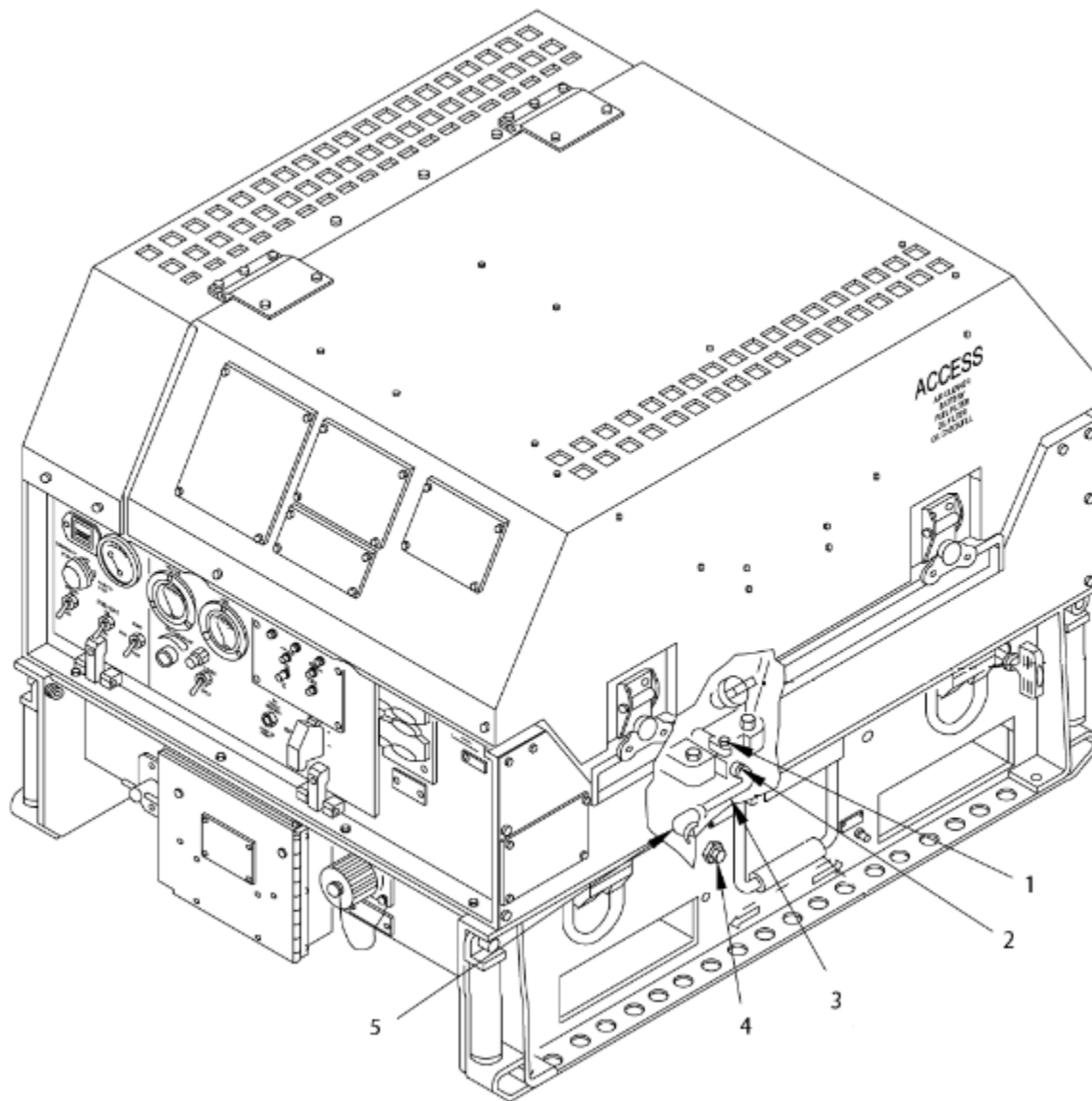


Figure 1. Lubrication System.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

OIL DRAIN ASSEMBLY: INSPECT, REMOVE, REPLACE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References - cont'd

WP 0078
WP 0082

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

References

WP 0016

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect oil drain hose (Figure 1, Item 1) for cuts, cracks, deterioration, or other damage. Inspect for evidence of leakage.
3. Inspect drain valve (Figure 1, Item 4) for clogging or obstruction. Ensure drain valve handle operates smoothly and that valve shuts completely.
4. Inspect elbow (Figure 1, Item 2), fitting, and plug for damage. Inspect for crossed, stripped, or damaged threads.

END OF TASK

REMOVE

1. Confirm drain valve (Figure 1, Item 4) is closed (valve handle perpendicular to valve).
2. Disconnect hose (Figure 1, Item 1) from drain valve (Figure 1, Item 4) and adapter (Figure 1, Item 5), loosening hose clamps (Figure 1, Item 3). Remove adapter (Figure 1, Item 5) from elbow (Figure 1, Item 2).

NOTE

Nut on outside of skid base, adjacent to plug, is welded in place and not removable.

3. Unscrew plug (Figure 1, Item 8) from elbow (Figure 1, Item 2). Release chain (Figure 1, Item 9) from skid base by removing screw (Figure 1, Item 10), washers (Figure 1, Item 11), and locknut (Figure 1, Item 12). Remove chain (Figure 1, Item 9) from plug only if replacement is required.
4. Remove elbow (Figure 1, Item 2) from skid base by removing nut (Figure 1, Item 6) and star washer (Figure 1, Item 7).
5. If removal of drain valve (Figure 1, Item 4) is required, engine must be removed from generator set. See WP 0078 through WP 0082.

END OF TASK

REPLACE

1. Replace elbow (Figure 1, Item 2) on skid base and secure using nut (Figure 1, Item 6) and star washer (Figure 1, Item 7). Replace plug (Figure 1, Item 8) and secure chain (Figure 1, Item 9) to skid base using screw (Figure 1, Item 10), washers (Figure 1, Item 11), and locknut (Figure 1, Item 12).
2. Replace adapter (Figure 1, Item 5) onto elbow (Figure 1, Item 2).
3. Connect hose (Figure 1, Item 1) to drain valve (Figure 1, Item 4) and adapter (Figure 1, Item 5) and tighten hose clamps (Figure 1, Item 3).
4. Close drain valve (Figure 1, Item 4) by turning handle perpendicular to valve.
5. Service engine oil (WP 0016).

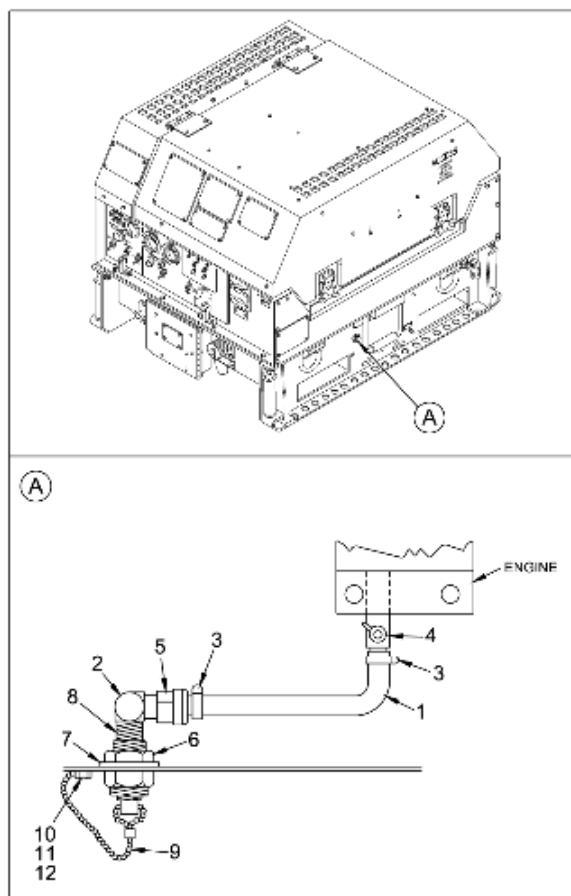


Figure 1. Oil Drain Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**OIL PRESSURE SWITCH: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0016

Materials/Parts

Sealant, Thread, Pipe, Loctite 565 (WP 0136, Table 1, Item 22)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect oil pressure switch (Figure 1, Item 2) for corrosion, evidence of electrical short, and obvious damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage.

END OF TASK**REMOVE****NOTE**

It is not necessary to drain oil if a suitable plug is used to plug port when oil pressure switch (Figure 1, Item 2) is removed. If required, drain oil. (See WP 0016, Table 1 and Lubrication Instructions).

1. Tag and disconnect electrical wires (Figure 1, Item 1) from pressure switch (Figure 1, Item 2).
2. Remove oil pressure switch (Figure 1, Item 2) from engine crankcase.

END OF TASK**REPLACE****CAUTION**

Oil pressure switch (Figure 1, Item 2) is fragile. Do not overtighten. Apply light pressure while tightening to prevent switch from breaking off in engine.

1. Apply a thin continuous bead of sealant compound (Loctite 565, WP 0136, Table 1) to threads of oil pressure switch (Figure 1, Item 2). Replace oil pressure switch (Figure 1, Item 2) in engine crankcase.
2. Connect electrical wires (Figure 1, Item 1) to oil pressure switch (Figure 1, Item 2).

REPLACE – CONTINUED

3. Service engine oil (See WP 0016, Table 1 and Lubrication Instructions), as required.

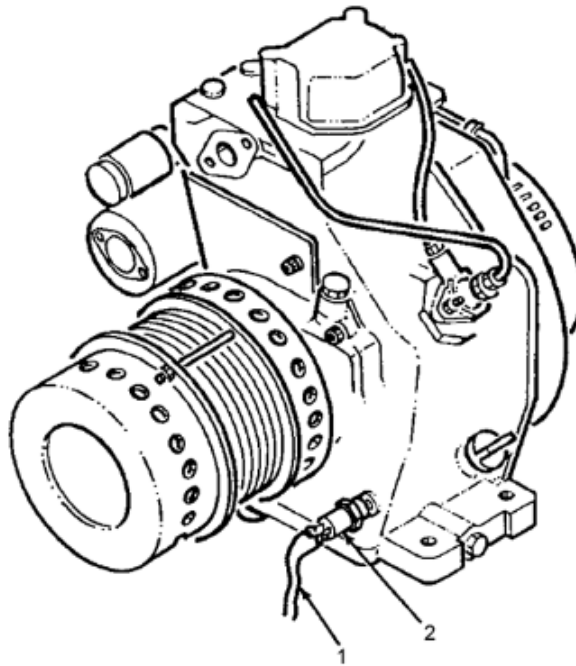


Figure 1. Oil Pressure Switch.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**ENGINE OIL TEMPERATURE SWITCH: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References

WP 0016

Materials/Parts

Sealant, Thread, Pipe, Loctite 565 (WP 0136, Table 1, Item 22)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect engine oil temperature switch (Figure 1, Item 2) for corrosion, evidence of electrical short, and obvious damage.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure plug is securely attached.

END OF TASK**REMOVE**

1. Disconnect electrical plug (Figure 1, Item 1) from engine oil temperature switch (Figure 1, Item 2).
2. Using a 1-inch, open-end wrench, remove engine oil temperature switch (Figure 1, Item 2) from engine crankcase.

END OF TASK**REPLACE****CAUTION**

Oil pressure switch (Figure 1, Item 2) is fragile. Do not overtighten. Apply light pressure while tightening to prevent switch from breaking off in engine.

1. Apply a thin continuous bead of sealant compound, Loctite 565, (WP 0136, Table 1) to threads of engine oil temperature switch (Figure 1, Item 2). Replace engine oil temperature switch (Figure 1, Item 2) into engine crankcase.
2. Connect electrical plug (Figure 1, Item 1) to engine oil temperature switch (Figure 1, Item 2).
3. Check engine oil in accordance with WP 0016, Table 1 and Lubrication Instructions.

REPLACE – CONTINUED

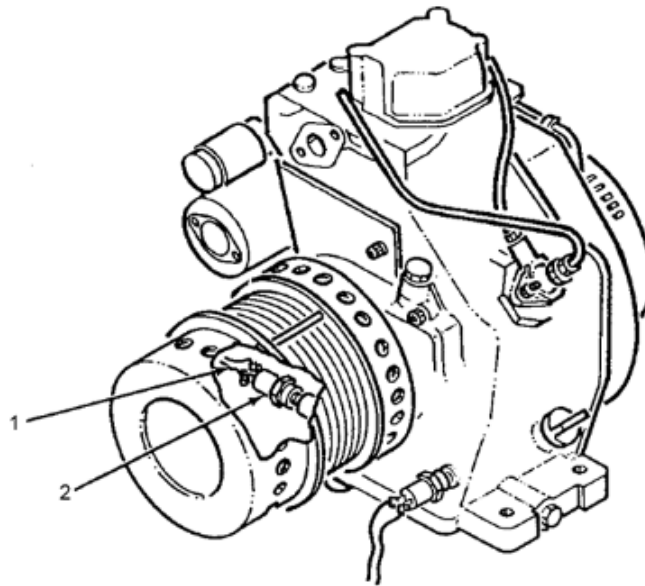


Figure 1. Engine Oil Temperature Switch.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**OIL FILTER: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Materials/Parts

Cloth, Cleaning (WP 0136, Table 1, Item 4)
Oil, Engine (WP 0136, Table 1, Item 10)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)
Engine oil drained (WP 0016)

INSPECT

1. Inspect oil filter (Figure 1, Item 1) for obvious damage.
2. Check oil filter's mesh material for damage.
3. Clean out clogging dirt and residue.
4. Inspect area around oil filter port for evidence of leakage. Using a clean rag, clean area of dirt and accumulated grime.

END OF TASK**REMOVE**

1. Remove oil filter (Figure 1, Item 1) from crankcase cover (Figure 1, Item 2) by removing bolt (Figure 1, Item 3).
2. Remove and discard O-ring (Figure 1, Item 4).

END OF TASK**REPLACE**

1. Apply a light coat of lubricating oil to new O-ring (Figure 1, Item 4) and install O-ring onto oil filter (Figure 1, Item 1).
2. Slide oil filter (Figure 1, Item 1) into crankcase (Figure 1, Item 2) and secure using bolt (Figure 1, Item 3).

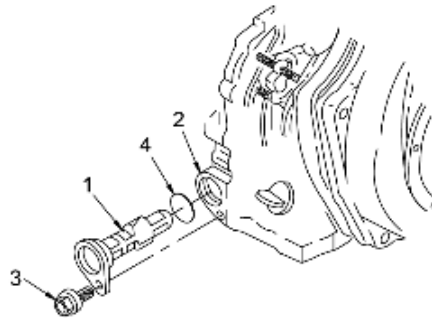
REPLACE – CONTINUED

Figure 1. Oil Filter.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**EXHAUST SYSTEM ASSEMBLY: INSPECT, REMOVE, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

References - cont'd

WP 0076
WP 0077

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down and cooled down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

References

WP 0075

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect muffler bracket, and check for loose bolts and screws.
3. Inspect muffler (Figure 1, Item 1), bellows (Figure 1, Item 2), duct (Figure 1, Item 3), and flanges (Figure 1, Item 4) for cracks, dents, corrosion, and obvious damage.
4. Check for holes or evidence of deterioration in muffler (Figure 1, Item 1) and with gaskets (Figure 1, Item 5).

END OF TASK**REMOVE**

1. Remove muffler assembly (WP 0075).
2. Remove bellows assembly (WP 0076).
3. Remove duct assembly (WP 0077).

END OF TASK**REPLACE**

1. Replace muffler assembly (WP 0075).
2. Replace bellows assembly (WP 0076).
3. Replace duct assembly (WP 0077).

REPLACE – CONTINUED

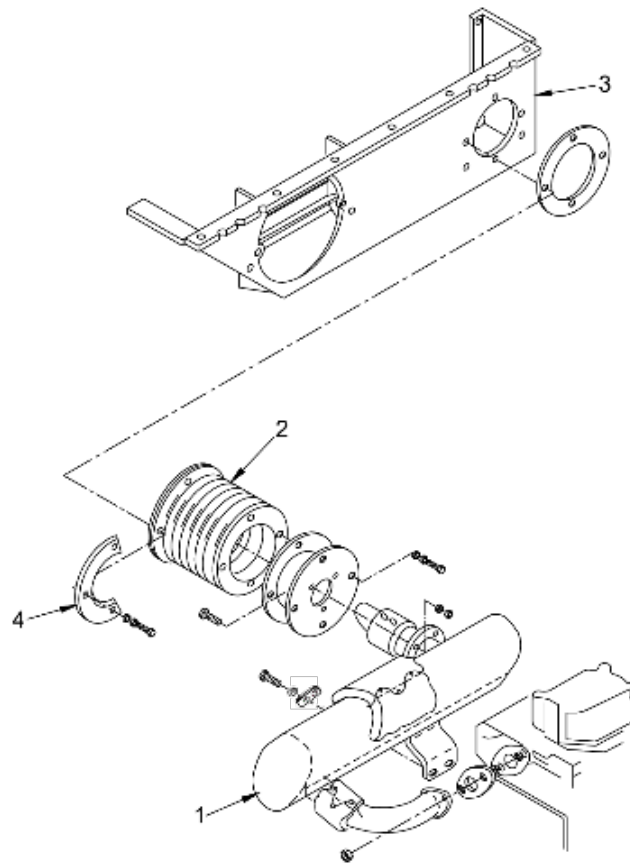


Figure 1. Exhaust System Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

MUFFLER ASSEMBLY: INSPECT, REMOVE, REPLACE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Materials/Parts

Sealing Compound, Adhesive LocTite 242 (WP 0136, Table 1, Item 23)

Equipment Condition

Generator set shut down and cooled down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect muffler (Figure 1, Item 27) for cracks, dents, corrosion, and obvious damage.
3. Check for holes or evidence of deterioration in muffler (Figure 1, Item 27) and with gaskets (Figure 1, Item 21).
4. Check nuts (Figure 1, Item 15) on cylinder head studs (Figure 1, Item 16) to ensure they are tightened to 216 in•lb (18 ft•lb).
5. Check muffler mounting bolts (Figure 1, Item 23) to ensure they are tightened to 108 in•lb (9 ft•lb).

NOTE

Vibrations can loosen muffler mounting hardware. With loose mounting hardware vibrations will crack exhaust pipe. A crack in the pipe or muffler could lead to an exhaust system failure. If muffler mounting hardware loosens, tighten it. If mounting bolts (Figure 1, Item 23) have suffered thread damage replace them. Before replacement, add a thin continuous bead of Sealing Compound, Adhesive LocTite 242 to the threads. Some muffler mounting hardware is underneath the muffler, on the back of the engine, and is hard to see.

6. Inspect muffler (Figure 1, Item 27) for flow-through and carbon accumulation.

END OF TASK

REMOVE

1. Remove access plate (Figure 1, Item 1) from left-side panel (Figure 1, Item 2) by removing screws (Figure 1, Item 3), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 5).
2. Remove deflector panel (Figure 1, Item 6) from left-side panel (Figure 1, Item 2) by removing screws (Figure 1, Item 7), lockwashers (Figure 1, Item 8), and washers (Figure 1, Item 9).
3. Remove mounting plate (Figure 1, Item 10) from left-side panel (Figure 1, Item 2) by removing four screws (Figure 1, Item 11), lockwashers (Figure 1, Item 12), and washers (Figure 1, Item 13).

REMOVE – CONTINUED

4. Remove thermal wrap (Figure 1, Item 14) from muffler (Figure 1, Item 27) by removing lockwire. Remove nuts (Figure 1, Item 15) and (Figure 1, Item 39) from cylinder head studs (Figure 1, Item 16).
5. Remove screws (Figure 1, Item 17), lockwashers (Figure 1, Item 18), and washers (Figure 1, Item 19). Remove bellows (Figure 1, Item 20) and gasket (Figure 1, Item 21) from flange (Figure 1, Item 22).
6. Remove screws (Figure 1, Item 23), lockwashers (Figure 1, Item 24), washer plate (Figure 1, Item 25), muffler (Figure 1, Item 27), and gasket (Figure 1, Item 26) from engine block.
7. Remove flange (Figure 1, Item 22) from muffler (Figure 1, Item 27) by removing screws (Figure 1, Item 28), lockwashers (Figure 1, Item 29), and nuts (Figure 1, Item 30).
8. Remove thermal wrap (Figure 1, Item 31) and thermal blanket (Figure 1, Item 32) from muffler (Figure 1, Item 27) by removing lockwire.
9. Remove bellows (Figure 1, Item 20), flange (Figure 1, Item 33), and gasket (Figure 1, Item 37) from duct (Figure 1, Item 38) by removing screws (Figure 1, Item 34), lockwashers (Figure 1, Item 35), and washers (Figure 1, Item 36).

END OF TASK**REPLACE**

1. Replace bellows (Figure 1, Item 20), flange (Figure 1, Item 33), and gasket (Figure 1, Item 37) on duct (Figure 1, Item 38) using screws (Figure 1, Item 34), lockwashers (Figure 1, Item 35), and washers (Figure 1, Item 36).
2. Replace flange (Figure 1, Item 22) on muffler (Figure 1, Item 27) using screws (Figure 1, Item 28), lockwashers (Figure 1, Item 29), and nuts (Figure 1, Item 30).
3. Install muffler (Figure 1, Item 27) and gasket (Figure 1, Item 26) to the engine block. Apply a thin continuous bead of locking compound to the cylinder head studs (Figure 1, Item 16).
4. Secure muffler (Figure 1, Item 27) using nuts (Figure 1, Item 15), lock washers (Figure 1, Item 39). Torque nuts (Figure 1, Item 15) to 216 in•lb (18 ft•lb).
5. Apply a thin continuous bead of Sealing Compound, Adhesive LocTite 242 to screws (Figure 1, Item 23). Secure muffler (Figure 1, Item 27) with screws (Figure 1, Item 23), lockwashers (Figure 1, Item 24), and washer plate (Figure 1, Item 25) to the engine block. Torque screws (Figure 1, Item 23) to 108 in•lb (9 ft•lb).
6. Replace thermal wrap (Figure 1, Item 31) and thermal blanket (Figure 1, Item 32) on muffler (Figure 1, Item 27). Secure using lockwire.
7. Replace bellows (Figure 1, Item 20) and gasket (Figure 1, Item 21) on flange (Figure 1, Item 22). Replace screws (Figure 1, Item 17), lockwashers (Figure 1, Item 18), and washers (Figure 1, Item 19).
8. Replace mounting plate (Figure 1, Item 10) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 11), lockwashers (Figure 1, Item 12), and washers (Figure 1, Item 13).
9. Replace deflector panel (Figure 1, Item 6) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 7), lockwashers (Figure 1, Item 8), and washers (Figure 1, Item 9).
10. Replace access plate (Figure 1, Item 1) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 3), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 5).
11. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

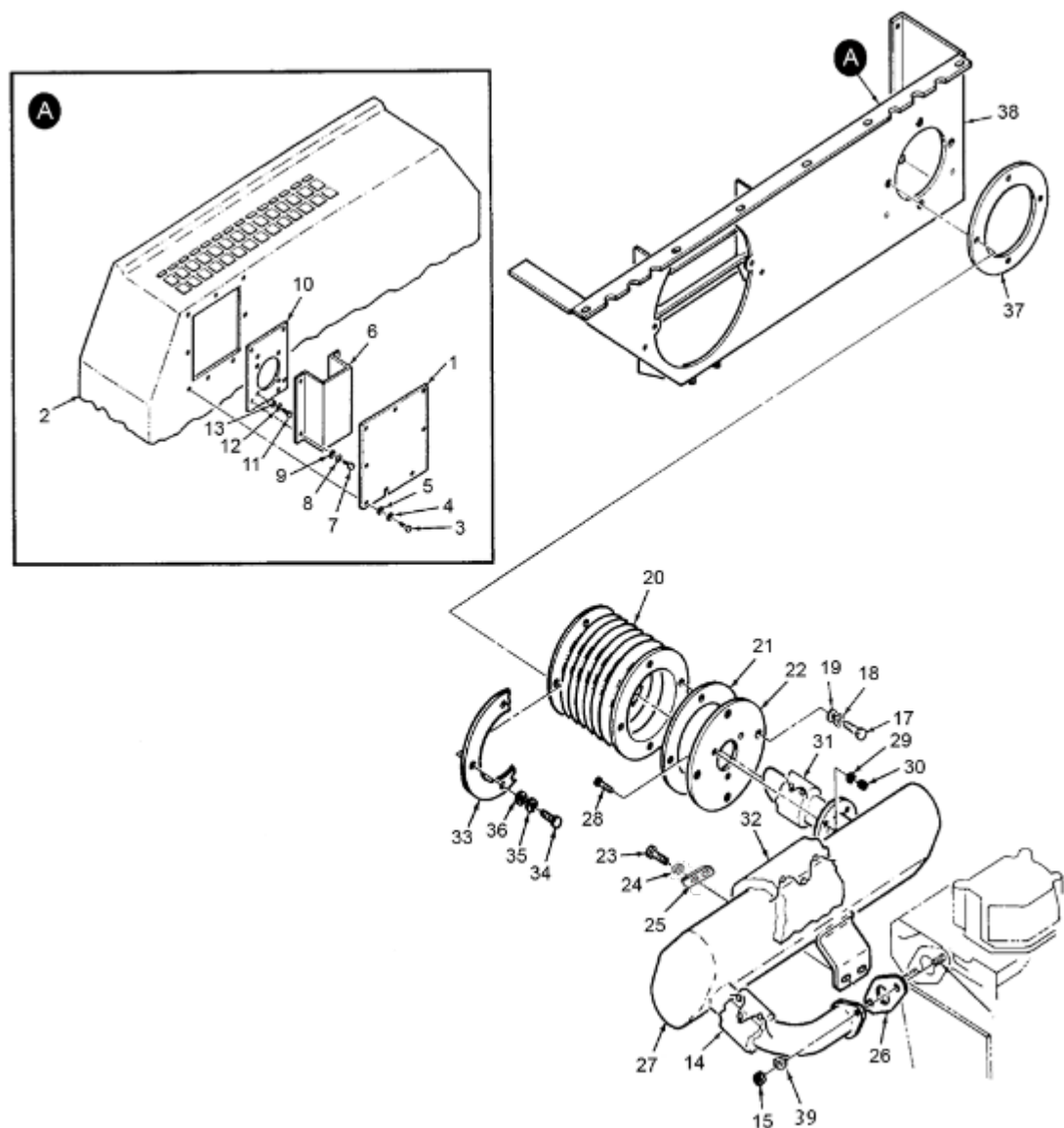


Figure 1. Muffler Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

BELLOWS ASSEMBLY: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Materials/Parts

Sealing Compound, Adhesive LocTite 242 (WP 0136, Table 1, Item 23)

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect bellows (Figure 1, Item 20) for cracks, dents, corrosion, and obvious damage.
3. Check for holes or evidence of deterioration in bellows (Figure 1, Item 20) and with gaskets (Figure 1, Item 21).
4. Check for loose bolts and screws.

END OF TASK**REMOVE**

1. Remove access plate (Figure 1, Item 1) from left-side panel (Figure 1, Item 2) by removing screws (Figure 1, Item 3), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 5).
2. Remove deflector panel (Figure 1, Item 6) from left-side panel (Figure 1, Item 2) by removing screws (Figure 1, Item 7), lockwashers (Figure 1, Item 8), and washers (Figure 1, Item 9).
3. Remove mounting plate (Figure 1, Item 10) from left-side panel (Figure 1, Item 2) by removing four screws (Figure 1, Item 11), lockwashers (Figure 1, Item 12), and washers (Figure 1, Item 13).
4. Remove thermal wrap (Figure 1, Item 14) from muffler (Figure 1, Item 27) by removing lockwire. Remove nuts (Figure 1, Item 15) and (Figure 1, Item 39) from cylinder head studs (Figure 1, Item 16).
5. Remove screws (Figure 1, Item 17), lockwashers (Figure 1, Item 18), and washers (Figure 1, Item 19). Remove bellows (Figure 1, Item 20) and gasket (Figure 1, Item 21) from flange (Figure 1, Item 22).
6. Remove screws (Figure 1, Item 23), lockwashers (Figure 1, Item 24), washer plate (Figure 1, Item 25), muffler (Figure 1, Item 27), and gasket (Figure 1, Item 26) from engine block.
7. Remove flange (Figure 1, Item 22) from muffler (Figure 1, Item 27) by removing screws (Figure 1, Item 28), lockwashers (Figure 1, Item 29), and nuts (Figure 1, Item 30).
8. Remove thermal wrap (Figure 1, Item 31) and thermal blanket (Figure 1, Item 32) from muffler (Figure 1, Item 27) by removing lockwire.
9. Remove bellows (Figure 1, Item 20), flange (Figure 1, Item 33), and gasket (Figure 1, Item 37) from duct (Figure 1, Item 38) by removing screws (Figure 1, Item 34), lockwashers (Figure 1, Item 35), and washers (Figure 1, Item 36).

END OF TASK**REPLACE**

1. Replace bellows (Figure 1, Item 20), flange (Figure 1, Item 33), and gasket (Figure 1, Item 37) on duct (Figure 1, Item 38) using screws (Figure 1, Item 34), lockwashers (Figure 1, Item 35), and washers (Figure 1, Item 36).
2. Replace flange (Figure 1, Item 22) on muffler (Figure 1, Item 27) using screws (Figure 1, Item 28), lockwashers (Figure 1, Item 29), and nuts (Figure 1, Item 30).
3. Install muffler (Figure 1, Item 27) and gasket (Figure 1, Item 26) to the engine block. Apply a thin continuous bead of locking compound to the cylinder head studs (Figure 1, Item 16).
4. Secure muffler (Figure 1, Item 27) using nuts (Figure 1, Item 15), lock washers (Figure 1, Item 39). Torque nuts (Figure 1, Item 15) to 216 in•lb (18 ft•lb).
5. Apply a thin continuous bead of Sealing Compound, Adhesive LocTite 242 to screws (Figure 1, Item 23). Secure muffler (Figure 1, Item 27) with screws (Figure 1, Item 23), lockwashers (Figure 1, Item 24), and washer plate (Figure 1, Item 25) to the engine block. Torque screws (Figure 1, Item 23) to 108 in•lb (9 ft•lb).
6. Replace thermal wrap (Figure 1, Item 31) and thermal blanket (Figure 1, Item 32) on muffler (Figure 1, Item 27). Secure using lockwire.
7. Replace bellows (Figure 1, Item 20) and gasket (Figure 1, Item 21) on flange (Figure 1, Item 22). Replace screws (Figure 1, Item 17), lockwashers (Figure 1, Item 18), and washers (Figure 1, Item 19).
8. Replace mounting plate (Figure 1, Item 10) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 11), lockwashers (Figure 1, Item 12), and washers (Figure 1, Item 13).
9. Replace deflector panel (Figure 1, Item 6) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 7), lockwashers (Figure 1, Item 8), and washers (Figure 1, Item 9).
10. Replace access plate (Figure 1, Item 1) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 3), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 5).
11. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

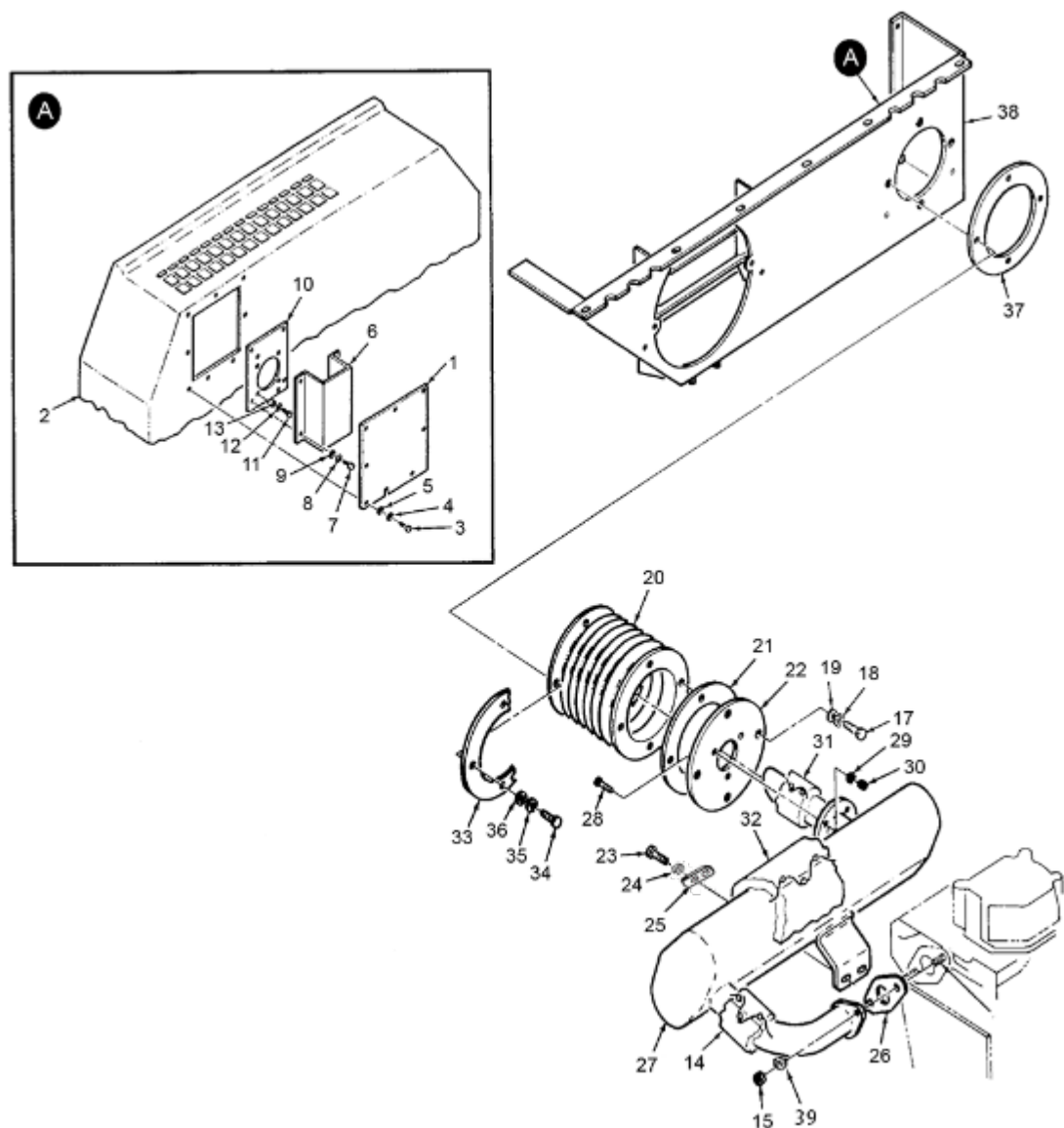


Figure 1. Bellows Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUCT ASSEMBLY: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Materials/Parts

Sealing Compound, Adhesive LocTite 242 (WP 0136, Table 1, Item 23)

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

INSPECT

1. Unlock main access cover latches and lift cover to open.
2. Inspect duct (Figure 1, Item 38) for cracks, dents, corrosion, and obvious damage.
3. Check for holes or evidence of deterioration in duct assembly (Figure 1, Item 38), mounting plate (Figure 1, Item 10), deflector panel (Figure 1, Item 6), and access plate (Figure 1, Item 1). Also check flange gaskets.
4. Check for loose bolts and screws.

END OF TASK**REMOVE**

1. Remove access plate (Figure 1, Item 1) from left-side panel (Figure 1, Item 2) by removing screws (Figure 1, Item 3), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 5).
2. Remove deflector panel (Figure 1, Item 6) from left-side panel (Figure 1, Item 2) by removing screws (Figure 1, Item 7), lockwashers (Figure 1, Item 8), and washers (Figure 1, Item 9).
3. Remove mounting plate (Figure 1, Item 10) from left-side panel (Figure 1, Item 2) by removing four screws (Figure 1, Item 11), lockwashers (Figure 1, Item 12), and washers (Figure 1, Item 13).
4. Remove thermal wrap (Figure 1, Item 14) from muffler (Figure 1, Item 27) by removing lockwire. Remove nuts (Figure 1, Item 15) and (Figure 1, Item 39) from cylinder head studs (Figure 1, Item 16).
5. Remove screws (Figure 1, Item 17), lockwashers (Figure 1, Item 18), and washers (Figure 1, Item 19). Remove bellows (Figure 1, Item 20) and gasket (Figure 1, Item 21) from flange (Figure 1, Item 22).
6. Remove screws (Figure 1, Item 23), lockwashers (Figure 1, Item 24), washer plate (Figure 1, Item 25), muffler (Figure 1, Item 27), and gasket (Figure 1, Item 26) from engine block.
7. Remove flange (Figure 1, Item 22) from muffler (Figure 1, Item 27) by removing screws (Figure 1, Item 28), lockwashers (Figure 1, Item 29), and nuts (Figure 1, Item 30).
8. Remove thermal wrap (Figure 1, Item 31) and thermal blanket (Figure 1, Item 32) from muffler (Figure 1, Item 27) by removing lockwire.
9. Remove bellows (Figure 1, Item 20), flange (Figure 1, Item 33), and gasket (Figure 1, Item 37) from duct (Figure 1, Item 38) by removing screws (Figure 1, Item 34), lockwashers (Figure 1, Item 35), and washers (Figure 1, Item 36).

END OF TASK**REPLACE**

1. Replace bellows (Figure 1, Item 20), flange (Figure 1, Item 33), and gasket (Figure 1, Item 37) on duct (Figure 1, Item 38) using screws (Figure 1, Item 34), lockwashers (Figure 1, Item 35), and washers (Figure 1, Item 36).
2. Replace flange (Figure 1, Item 22) on muffler (Figure 1, Item 27) using screws (Figure 1, Item 28), lockwashers (Figure 1, Item 29), and nuts (Figure 1, Item 30).
3. Install muffler (Figure 1, Item 27) and gasket (Figure 1, Item 26) to the engine block. Apply a thin continuous bead of locking compound to the cylinder head studs (Figure 1, Item 16).
4. Secure muffler (Figure 1, Item 27) using nuts (Figure 1, Item 15), lock washers (Figure 1, Item 39). Torque nuts (Figure 1, Item 15) to 216 in•lb (18 ft•lb).
5. Apply a thin continuous bead of Sealing Compound, Adhesive LocTite 242 to screws (Figure 1, Item 23). Secure muffler (Figure 1, Item 27) with screws (Figure 1, Item 23), lockwashers (Figure 1, Item 24), and washer plate (Figure 1, Item 25) to the engine block. Torque screws (Figure 1, Item 23) to 108 in•lb (9 ft•lb).
6. Replace thermal wrap (Figure 1, Item 31) and thermal blanket (Figure 1, Item 32) on muffler (Figure 1, Item 27). Secure using lockwire.
7. Replace bellows (Figure 1, Item 20) and gasket (Figure 1, Item 21) on flange (Figure 1, Item 22). Replace screws (Figure 1, Item 17), lockwashers (Figure 1, Item 18), and washers (Figure 1, Item 19).
8. Replace mounting plate (Figure 1, Item 10) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 11), lockwashers (Figure 1, Item 12), and washers (Figure 1, Item 13).
9. Replace deflector panel (Figure 1, Item 6) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 7), lockwashers (Figure 1, Item 8), and washers (Figure 1, Item 9).
10. Replace access plate (Figure 1, Item 1) on left-side panel (Figure 1, Item 2) using screws (Figure 1, Item 3), lockwashers (Figure 1, Item 4), and washers (Figure 1, Item 5).
11. Close main access cover and lock in place using latches.

REPLACE – CONTINUED

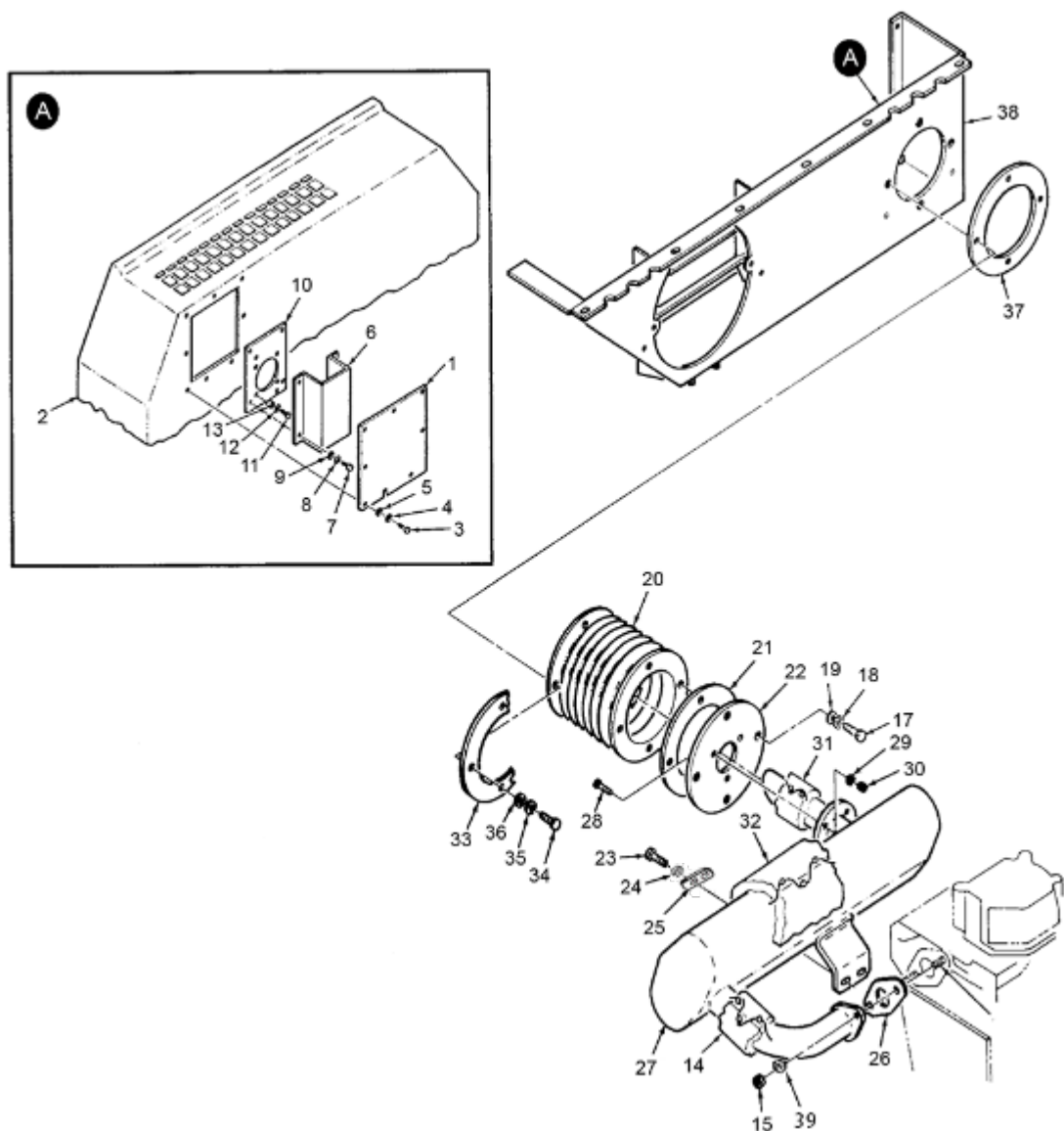


Figure 1. Duct Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**GENERATOR SET/ENGINE ASSEMBLY: INSPECT, TEST, REMOVE, REPLACE****INITIAL SETUP:****Tools and Special Tools**

Shop Equipment, Automotive Maintenance and
Repair, Field Maintenance, Suppl 1, W/O Power
(WP 0133, Table 2, Item 2)
Hoist, Lifting (WP 0133, Table 2, Item 5)

References - cont'd

WP 0070
WP 0077
WP 0131

Personnel Required

Power Generation Equipment Repairer 91D (2)

Equipment Condition

Generator set shut down (WP 0005)
Muffler assembly removed (WP 0075)

References

WP 0004
WP 0017
WP 0020
WP 0053
WP 0054
WP 0061
WP 0063

Drawings Required

Generator Set Electrical Schematic (FO-1)
Generator Set Wiring Diagram (FO-2)
Engine Wiring Harness Diagram, 60 Hz (FO-3)
Engine Wiring Harness Diagram, 400 Hz (FO-4)

INSPECT

1. Visually inspect generator set engine assembly for damage. Clean, as required, to view all components carefully. Look for signs of fluid leakage. Check all sealing areas and surfaces.
2. Inspect engine fuel and oil lines for cracks, cuts, abrasions, evidence of leakage, and obvious damage. Check fluid fittings and connectors for security of attachment.
3. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Inspect wiring insulation for damage. Ensure all connectors and terminal lugs are securely attached.
4. Conduct a detailed inspection of suspect components in accordance with the appropriate maintenance paragraph.

WARNING

DC voltages are present at generator set electrical components even with the generator set shut down. Avoid shorting any positive terminal with ground or negative. If no DC voltage is required, always disconnect DC power source to the generator set before working on it. Failure to observe this warning could result in severe personal injury or death by electrocution.

5. Remove and replace any component damaged to the extent it will affect safe operation of generator set.

END OF TASK**TEST**

Verify all tests outlined in WP 0017 through WP 0077 have been performed.

END OF TASK

REMOVE**WARNING**

DC voltages are present at generator set electrical components even with the generator set shut down. Avoid shorting any positive terminal with ground or negative. If no DC voltage is required, always disconnect DC power source to the generator set before working on it. Failure to observe this warning could result in severe personal injury or death by electrocution.

1. Remove two cover supports from main access cover (WP 0063, Figure 1, Item 1). Fully open main access cover (WP 0063, Figure 1, Item 1). Remove wire ties.
2. Tag and disconnect electrical wiring from engine components, including oil pressure switch, starter (positive terminal), and two air heater plugs. See FO-3 and FO-4 for wire locations.
3. Disconnect all connectors from TB6A. Disconnect wire from fuse (FU1). Disconnect wire (TB4B9). Disconnect all wires from Frequency Converter (A8).
4. Disconnect fuel return line (Figure 1, Item 1) from fuel injector. Disconnect fuel line (Figure 1, Item 2) from fuel tank to tee. Disconnect fuel line (Figure 1, Item 3) from fuel filter/water separator outlet. Disconnect fuel return line (Figure 1, Item 1) from fuel injector.
5. Disconnect oil drain line (Figure 1, Item 4) from oil drain valve (Figure 1, Item 12) by loosening clamp (Figure 1, Item 13).

WARNING

The generator set is heavy. Provide lifting hoist capable of lifting 100 lbs. Do not lift generator set over personnel. Enlist the help of an aide to prevent damage to equipment. Failure to observe this warning could result in severe personal injury or death.

6. Attach lifting hoist to engine lifting cable (Figure 1, Item 10). Raise hoist to remove slack.
7. Release generator set engine assembly (Figure 1, Item 23) from vibration isolators (Figure 1, Item 14) by removing screws (Figure 1, Item 15), lockwashers (Figure 1, Item 16), and washers (Figure 1, Item 17).

CAUTION

End of starter rope can be quickly drawn into recoil winding mechanism, making it pull back out. To prevent this, ensure end of starter rope is knotted or otherwise secured after removing tee handle.

8. Disconnect tee handle from starter pull rope (WP 0004, Figure 1, Item 20) by removing knot. Feed end of rope through hole (WP 0004, Figure 1, Item 34) in skid base (Figure 1, Item 27).
9. Carefully lift generator set engine assembly (Figure 1, Item 23) up and out of generator set main frame. Place generator set engine assembly on a flat work surface for further maintenance. If generator set engine assembly (Figure 1, Item 23) is to be replaced, remove lifting cable (Figure 1, Item 10) by removing screws (Figure 1, Item 11), lockwasher (Figure 1, Item 12), and washer (Figure 1, Item 13). Retain for future use.
10. If required, remove generator set engine assembly (Figure 1, Item 23) from engine base (Figure 1, Item 18) by removing screws (Figure 1, Item 19), washers (Figure 1, Item 20), and nuts (Figure 1, Item 21).
11. Remove vibration isolators (Figure 1, Item 14) from skid base (Figure 1, Item 27) by removing screws (Figure 1, Item 24), washers (Figure 1, Item 25), and nuts (Figure 1, Item 26).
12. If generator set engine assembly (Figure 1, Item 23) is being replaced, remove and retain the following engine components for use on new engine: engine air cleaner assembly (WP 0061, Figure 1, Item 5), engine oil drain valve (WP 0070, Figure 1, Item 7), governor actuator (WP 0020, Figure 1, Item 2), and engine lifting cable (Figure 1, Item 10).

END OF TASK**REPLACE****WARNING**

The generator set is heavy. Provide lifting hoist capable of lifting 100 lbs. Do not lift generator set over personnel. Enlist the help of an aide to prevent damage to equipment. Failure to observe this warning could result in severe personal injury or death.

NOTE

When replacing engine components, use new lockwashers if necessary.

1. Replace engine lifting cable (Figure 1, Item 10) on generator set engine assembly (Figure 1, Item 23) using screws (Figure 1, Item 11).
2. Attach lifting hoist to engine lifting cable (Figure 1, Item 10). Raise hoist to remove slack.
3. Carefully lift generator set engine assembly (Figure 1, Item 23) and install on plate (Figure 1, Item 18). Secure using screws (Figure 1, Item 19), washers (Figure 1, Item 20), and nuts (Figure 1, Item 21). Torque screws to 30 ft-lbs.
4. Install vibration isolators (Figure 1, Item 14) on skid base (Figure 1, Item 27) using screws (Figure 1, Item 24), washers (Figure 1, Item 25), and nuts (Figure 1, Item 26).
5. Lift generator set engine assembly (Figure 1, Item 23) and carefully lower into generator set main frame and housing. Make sure mounting holes on plate (Figure 1, Item 18) align with vibration isolators (Figure 1, Item 14).
6. Attach generator set engine assembly (Figure 1, Item 23) to vibration isolators (Figure 1, Item 14) using screws (Figure 1, Item 15), lockwashers (Figure 1, Item 16), and washers (Figure 1, Item 17). Torque screws to 30 ft-lbs.
7. Connect oil drain line (Figure 1, Item 4) to drain valve (Figure 1, Item 12) and secure by tightening clamp (Figure 1, Item 13). If removed, secure drain plug (Figure 1, Item 6) to skid base (Figure 1, Item 27) using screw (Figure 1, Item 7), washers (Figure 1, Item 8), and nut (Figure 1, Item 9).
8. Feed recoil winding mechanism starter rope through hole (WP 0004, Figure 1, (Sheet 1 of 4)) in skid base (Figure 1, Item 27). Install tee handle (WP 0004, Figure 1, Item 20) and knot rope to secure handle.
9. Connect fuel line (Figure 1, Item 3) to fuel filter/water separator outlet (Figure 1, Item 28). Connect fuel line (Figure 1, Item 2) from fuel tank to tee pipe (WP 0054, Figure 1, Item 16). Connect fuel return line (Figure 1, Item 1) to fuel injector. See fuel injector maintenance in TM 9-2815-257-24 (WP 0131).

CAUTION

After the following step is performed be sure to cover the connection point of the positive terminal of the starter with NSN: 8040-00-117-8510. Failure to comply may cause damage to the generator set and/or injury to soldiers.

10. Connect electrical wiring (FO-1 and FO-2) to engine components.
11. Attach cover support to main accesscover (WP 0063).
12. Install muffler assembly if necessary (WP 0075).
13. Ensure proper air filter assembly orientation, according to appropriate engine configuration (WP 0061).

REPLACE – CONTINUED

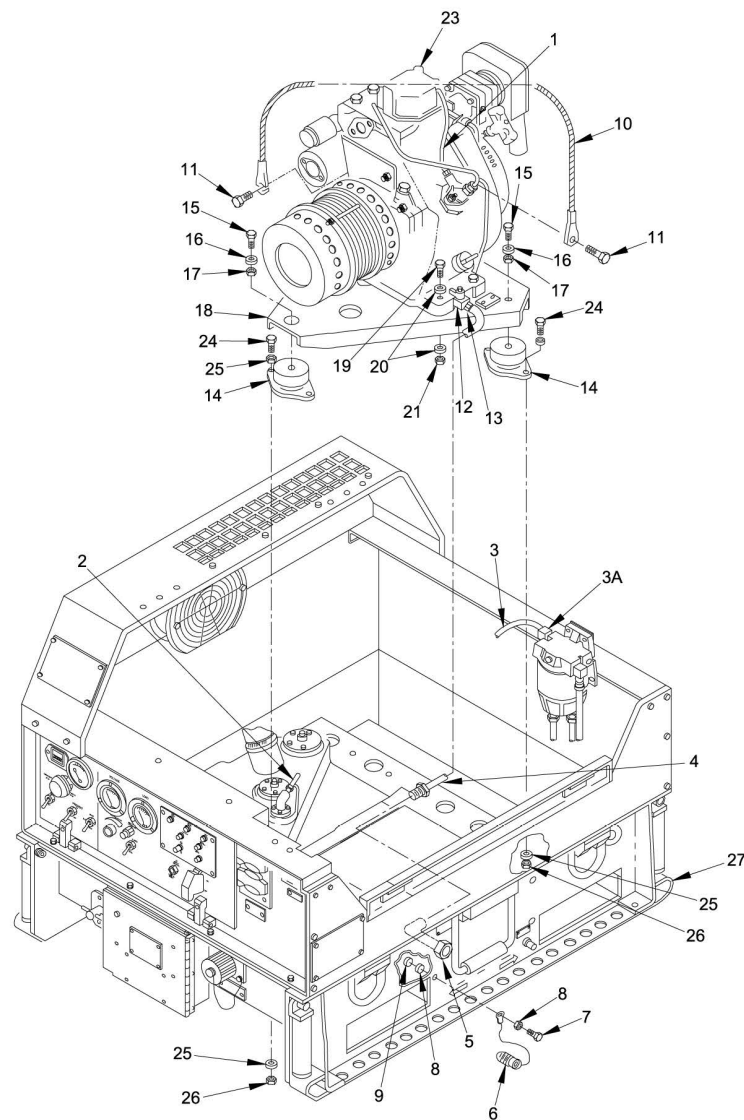


Figure 1. Generator Set Engine/Alternator Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERMANENT MAGNET ALTERNATOR (PMA): INSPECT, TEST, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)
 Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Materials/Parts

Sealing Compound Adhesive, Loctite 242 (WP 0136, Table 1, Item 23)

Personnel Required

Power Generation Equipment Repairer 91D (2)

References

WP 0087

Equipment Condition

Generator set shut down (WP 0005)
 Battery cables disconnected (WP 0026)
 Cable disconnected from NATO Slave Receptacle (WP 0066)

Drawings Required

Engine Wiring Harness Diagram, 400 Hz (FO-4)
 Engine Wiring Harness Diagram, 60 Hz (FO-3)

INSPECT

1. Inspect Permanent Magnet Alternator (PMA) (G1) components (Figure 2) for damage. To view all components, clean as required.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Inspect wiring insulation for damage. Ensure all connectors and terminal lugs are securely attached.
3. Inspect all components (Figure 2) for corrosion. Check attaching parts for crossed, stripped, or damaged threads.
4. Inspect grommet (Figure 2, Item 2) for damage. Inspect label (Figure 2, Item 1) for legibility.
5. Unplug P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) from the Frequency Converter (A8) (Figure 3, Item 1). P15 and P16 connect the PMA to the Frequency Converter (A8).
6. Inspect socket terminals of P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) for widening or deformity.
7. Plug P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) to the Frequency Converter (A8) (Figure 3, Item 1).

END OF TASK**TEST**

1. Open VOLTAGE SELECTOR switch door (Figure 3, Item 3) on top of Frequency Converter (A8) (Figure 3, Item 1).
2. Unplug P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) from the Frequency Converter (A8) (Figure 3, Item 1).

TEST – CONTINUED**CAUTION**

Do not force the test probes of the measuring instrument into the socket terminal of the connector as this may widen the socket, thus deforming its shape to a point where it may no longer provide a reliable connection to the mating pin of the Frequency Converter (A8) (Figure 3, Item 1).

3. Set multimeter to measure resistance on low range (less than 400 ohms). Measure resistance on P15 (Figure 1) between A1 to B1, A1 to C1, B1 to C1, A2 to B2, A2 to C2, B2 to C2. Readings should be less than 2.5 ohms.
4. Measure resistance on P16 (Figure 1) between A3 to B3, A3 to C3, B3 to C3, A4 to B4, A4 to C4, B4 to C4. Readings should be less than 2.5 ohms.

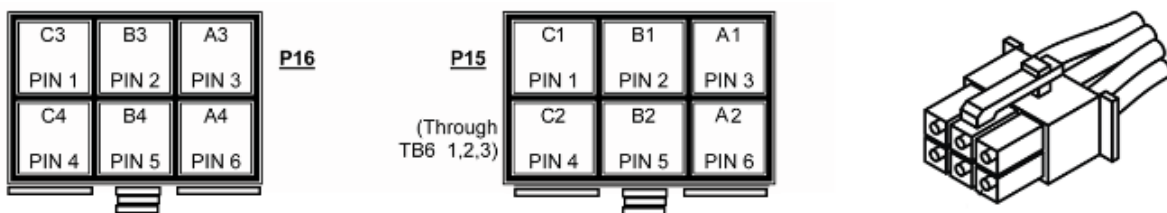


Figure 1. Pin Winding.

5. Select a multimeter range of high resistance (higher than 1 megohm). Measure resistance between all socket terminals on P15 and P16 (Figure 1) IAW Table 1. Readings should either read OL or over 200K ohms.

Table 1. High Range Resistance.

FROM	TO	TO	TO
A1	A2	B2	C2
A1	A3	B3	C3
A1	A4	B4	C4
B1	A2	B2	C2
B1	A3	B3	C3
B1	A4	B4	C4
C1	A2	B2	C2
C1	A3	B3	C3
C1	A4	B4	C4
A2	A3	B3	C3
A2	A4	B4	C4
B2	A3	B3	C3
B2	A4	B4	C4
C2	A3	B3	C3

TEST – CONTINUED

Table 1. High Range Resistance. – Continued

FROM	TO	TO	TO
C2	A4	B4	C4
A3	A4	B4	C4
B3	A4	B4	C4
C3	A4	B4	C4

6. Connect battery cables (WP 0026).

WARNING

High voltage is produced when generator set is being operated. Use care when working around an open control panel when generator set is on. Improper operation of generator set or failure to follow this warning could result in severe personal injury or death by electrocution.

With main access cover open, the noise level of the generator set when operating could cause hearing damage. Hearing protection must be worn when working within 3.0 m (10 ft. 6 in.) of the generator set while it is running. Failure to observe this warning could result in hearing loss.

When operating generator set, engine has hot metal surfaces that will burn flesh on contact. Take care not to touch hot parts. Failure to comply may cause injury or death to personnel.

Exhaust discharge contains deadly gases, including carbon monoxide. Do not operate generator set in enclosed area unless exhaust discharge is properly vented outside. Position generator set as far away from personnel, shelters, and occupied vehicles as possible. Failure to observe this warning could result in severe personal injury or death due to carbon monoxide poisoning.

7. Start generator set.
8. Set multimeter to measure voltage output. Measure voltage output P15 (Figure 1) between A1 to B1, A1 to C1, B1 to C1, A2 to B2, A2 to C2, B2 to C2. Minimum voltage readings should be 190 VAC.
9. Measure voltage output P16 (Figure 1) between A3 to B3, A3 to C3, B3 to C3, A4 to B4, A4 to C4, B4 to C4. Minimum voltage readings should be 190 VAC.
10. Remove J6 (Figure 4) from P6 (Figure 4).
11. Measure battery-charging winding output between pin 3 (Figure 4) and pin 4 (Figure 4) of P6 (Figure 4). Output should read approximately 32 to 52 VAC.
12. Shut the generator set down.
13. Connect J6 (Figure 4) to P6 (Figure 4).
14. Plug P15 (Figure 3, Item 5) and P16 (Figure 3, Item 4) into the Frequency Converter (A8) (Figure 3, Item 1).
15. Start the generator set and let it run for 1 to 2 minutes (leave the Selector Switch door (Figure 3, Item 3) open). Check voltage on top of Frequency Converter (A8) (Figure 3, Item 1) between L1 and neutral, between L2 and neutral, and between L1 and L2 is less than 1 V. This verifies that the Frequency Converter (A8) (Figure 3, Item 1) output voltage has shut off.
16. Ensure Selector Switch (Figure 3, Item 2) is in 120/240, 3 wire mode.
17. Close Selector Switch door (Figure 3, Item 3). Check voltage on top of Frequency Converter (A8) (Figure 3, Item 1) between L1 and neutral is 120 V, between L2 and neutral is 120 V, and between L1 and L2 is 240 V.

TEST – CONTINUED

18. Shut the generator set down and place the Voltage Selector Switch (Figure 3, Item 2) to desired connection and close the Selector Switch Door (Figure 3, Item 3).

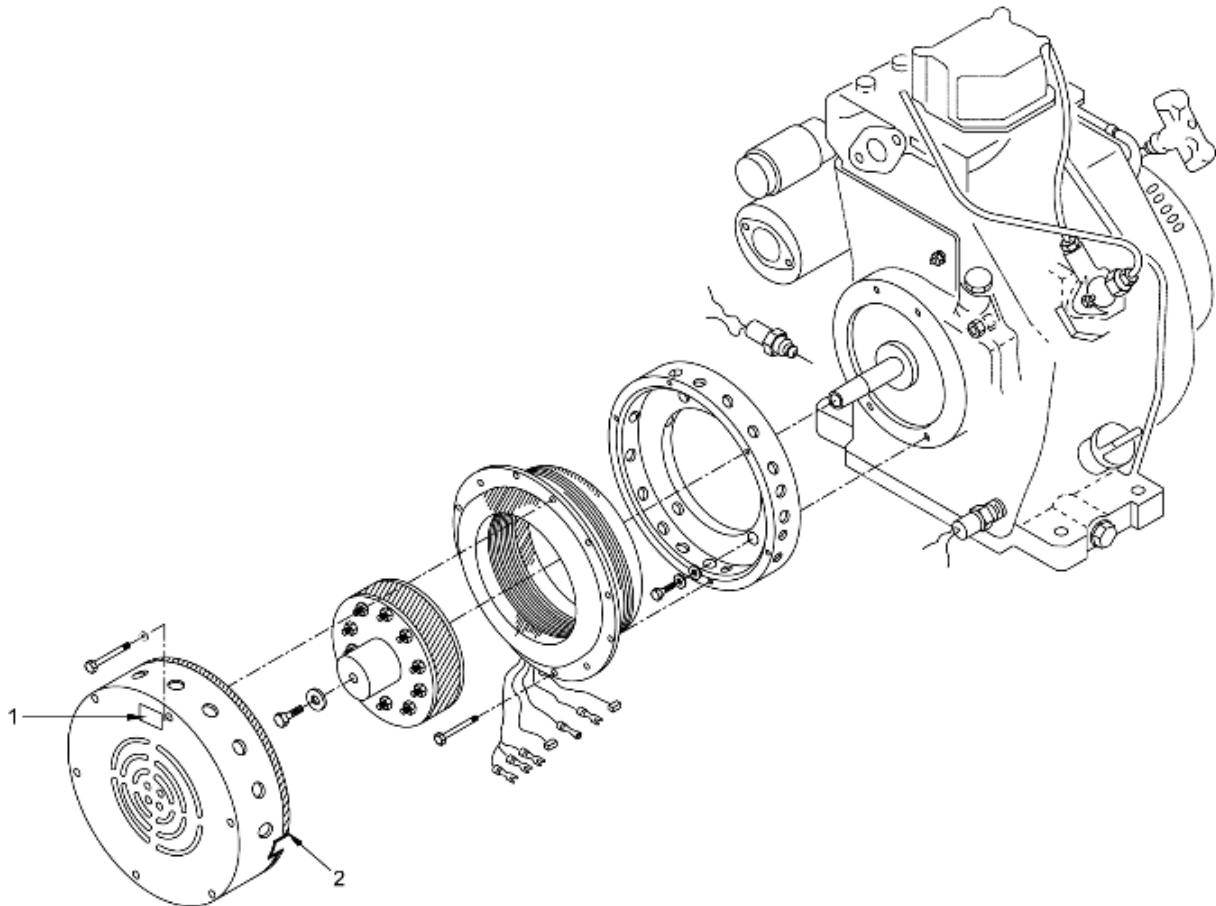


Figure 2. Permanent Magnet Alternator (G1).

TEST – CONTINUED

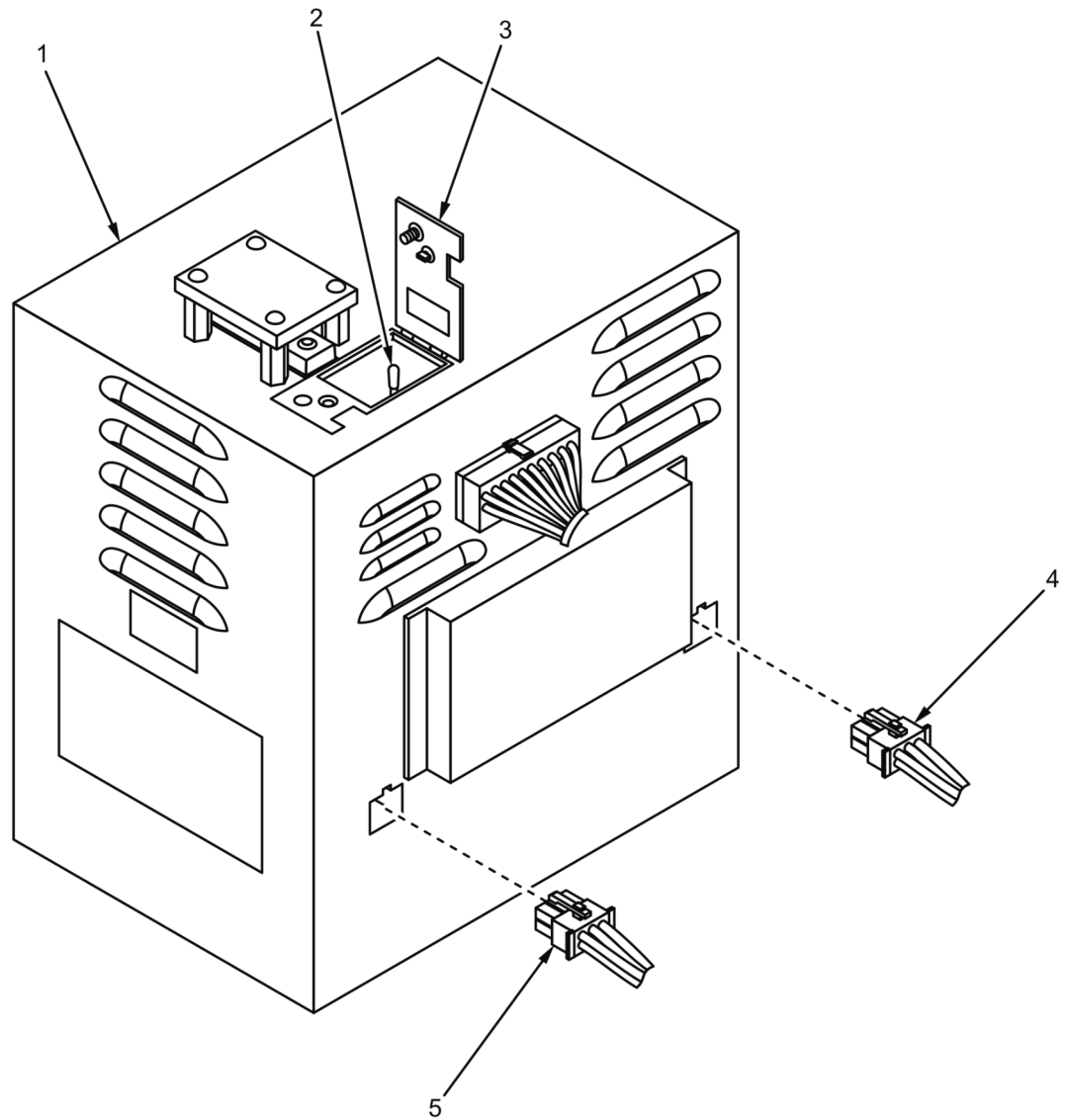


Figure 3. Frequency Converter (A8).

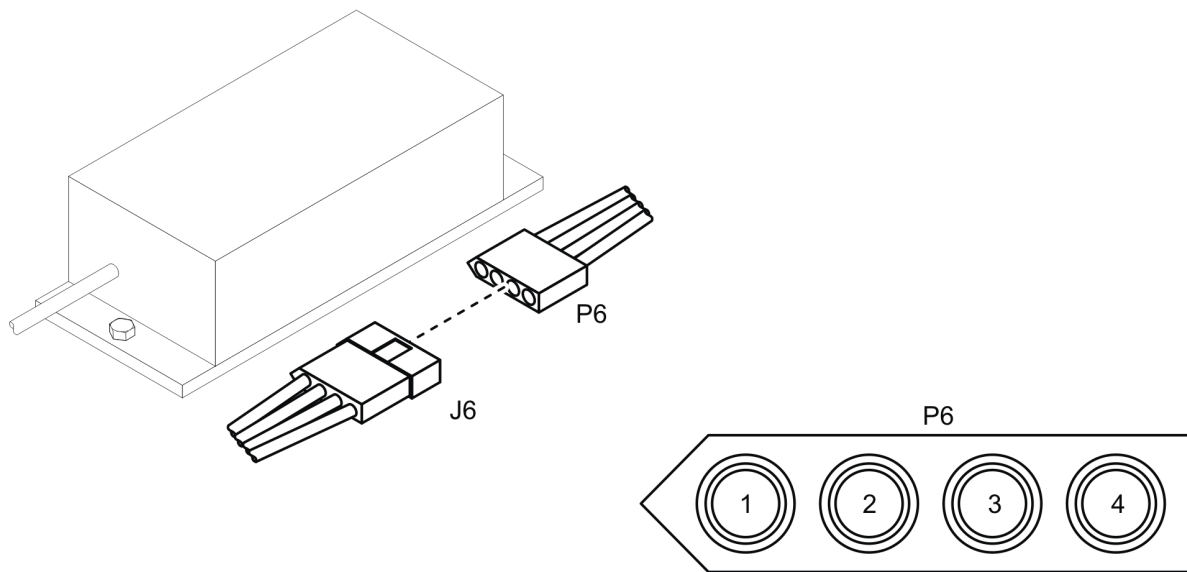
TEST – CONTINUED

Figure 4. Battery Charging Regulator (A9).

END OF TASK**REMOVE**

1. Tag and disconnect engine/alternator wiring harness (FO-4, Sheet 1 of 2).
2. Using a #4 metric Allen wrench, remove PMA cover (Figure 5, Item 5) by removing screws (Figure 5, Item 6). Use care when removing cover to prevent damage to alternator output leads.

CAUTION

Use correct puller. Damage to equipment can occur if wrong puller is used.

NOTE

Rotor assembly (Figure 5, Item 11) is held in stator (Figure 5, Item 14) by magnets. Rotor assembly must be completely removed from stator, or magnets will pull it back into place.

3. Release rotor assembly (Figure 5, Item 11) from engine shaft by removing screw (Figure 5, Item 9) and washer (Figure 5, Item 10). Using a mechanical puller, remove rotor assembly (Figure 5, Item 11) completely from stator (Figure 5, Item 14).
4. Loosen clamping ring (Figure 5, Item 13). Remove stator (Figure 5, Item 14) from engine adapter (Figure 5, Item 18) by removing screws (Figure 5, Item 12).
5. Remove engine adapter (Figure 5, Item 18) from engine by removing screws (Figure 5, Item 15), lockwashers (Figure 5, Item 16), and washers (Figure 5, Item 17).

END OF TASK**REPLACE**

1. Apply adhesive, Loctite 242, (WP 0136, Table 1) to threads of screws (Figure 5, Item 15). Install engine adapter (Figure 5, Item 18) on engine using screws (Figure 5, Item 15), lockwashers (Figure 5, Item 16), and washers (Figure 5, Item 17). Torque screws to 15 ft•lb (see WP 0087, Torque Limits).

CAUTION

Use extreme caution when installing the alternator on the 3-kw MEP-831A Tactical Quiet Generator.

The Niehoff K1201 alternator must use 1.98 inch, 10-32 thread bolts (Figure 5, Item 12). Failure to use the correct bolts will strip the screw wells. Do NOT confuse the 10-32 thread bolts with the stator with the 8-32 thread bolts, which are used to attach the alternator cover. As soon as pressure is applied, the 8-32 bolt will strip the threads on the generator.

A 2.5 inch engine mount bolt (Figure 5, Item 12) must be used with the Ferromont/Marathon alternator. Other sizes will not work.

2. Install stator (Figure 5, Item 14) on engine adapter (Figure 5, Item 18). Stator must be installed so that alternator output leads (Figure 5, Items 1, 2, 3 and 4) are at bottom, positioned for their exit through cover (Figure 5, Item 5) and grommet (Figure 5, Item 8). Secure stator (Figure 5, Item 14) using screws (Figure 5, Item 12) and clamping ring (Figure 5, Item 13).

WARNING

The rotor assembly (Figure 5, Item 11) is held in the stator (Figure 5, Item 14) by magnets. The rotor will snap into place in stator when installed. Use care to prevent injury to fingers. Failure to observe this warning could result in severe personal injury or death.

3. Hold rotor assembly (Figure 5, Item 11) so no part of your fingers will be between rotor and stator (Figure 5, Item 14). Carefully insert rotor assembly (Figure 5, Item 11) into stator (Figure 5, Item 14). Rotor will cock slightly as it is drawn into stator and sticks in place. Using a rubber hammer lightly tap high side of rotor (Figure 5, Item 11) until it slams into place.
4. Apply adhesive (Loctite) to threads of screw (Figure 5, Item 9). Install screw (Figure 5, Item 9) and washer (Figure 5, Item 10). Torque screw to 15 ft•lb. See WP 0087, Torque Limits.
5. Using a feeler gauge check that clearance between rotor assembly (Figure 5, Item 11) and stator (Figure 5, Item 14) is 0.010 inch (minimum) at all points. If clearance is less than 0.010 inch, remove rotor assembly (Figure 5, Item 11) and reinstall.
6. Feed alternator output leads (Figure 5, Items 1, 2, 3 and 4) through cover (Figure 5, Item 5) and grommet (Figure 5, Item 8). Output leads must exit cover without possibility of abrasion. Secure cover (Figure 5, Item 5) using screws (Figure 5, Item 6).

REPLACE – CONTINUED

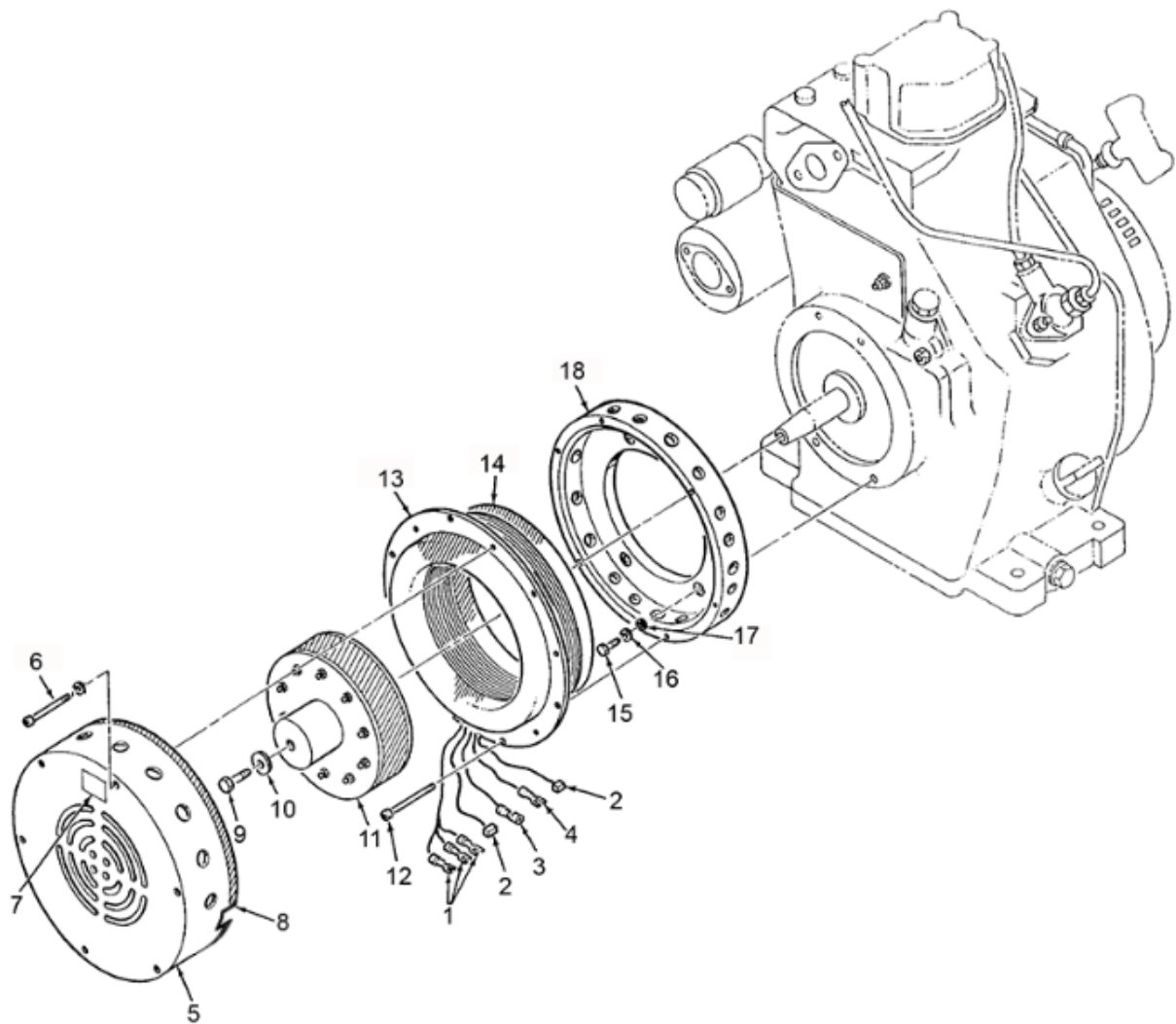


Figure 5. Permanent Magnet Alternator.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**ELECTRICAL SYSTEM ASSEMBLY: INSPECT, TEST, REPLACE**

INITIAL SETUP:**Tools and Special Tools**

Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

References - cont'd

WP 0066
WP 0080

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Generator set shut down (WP 0005)
Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

References

WP 0024
WP 0025
WP 0027
WP 0028
WP 0029

Drawings Required

Generator Set Wiring Diagram (FO-2)

INSPECT

1. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Inspect wiring insulation for damage (see FO-2).
2. Inspect connectors and terminal lugs. Ensure they are securely attached and free from corrosion. Ensure there are no broken connector ends.

END OF TASK**TEST**

Verify all field level Maintenance procedure tests, shown below, have been performed:

- a. Electrical System Assembly, WP 0080.
- b. Battery, WP 0025.
- c. Frequency Converter (A8), WP 0028.

END OF TASK**REPLACE**

Repair or replacement of parts is limited to removing and replacing damaged components. See the following work packages for instructions.

- a. Electrical System Assembly, WP 0080.
- b. Battery-Charging Regulator, WP 0024.
- c. Battery, WP 0025.

REPLACE – CONTINUED

- d. Battery cables, WP 0026.
- e. Contactor Assembly, WP 0027.
- f. Frequency Converter (A8), WP 0028.
- g. Relays, Electromagnetic, WP 0029.
- h. NATO Slave Receptacle, WP 0066.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
CONTROL BOX WIRING HARNESS: INSPECT, TEST, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0133, Table 2, Item 3)

Equipment Condition - cont'd

Battery cables disconnected (WP 0026)
Cable disconnected from NATO Slave Receptacle (WP 0066)

Personnel Required

Power Generation Equipment Repairer 91D (1)

Drawings Required

Engine Wiring Harness Diagram, 60 Hz (FO-3)
Engine Wiring Harness Diagram, 400 Hz (FO-4)

Equipment Condition

Generator set shut down (WP 0005)

INSPECT

1. Inspect harness connector J7 (Figure 1, Item 1) for corrosion, evidence of electrical short, and obvious damage. Check for bent, broken, or missing pins.
2. Inspect electrical wiring for cuts, crimps, bare wire, or other damage. Ensure connectors and terminal lugs are securely attached.

END OF TASK**TEST**

Using a multimeter conduct continuity check on suspect wires. Ensure connectors and terminal lugs are securely attached.

END OF TASK**REMOVE**

1. Unlock main access cover latches and lift cover to open.
2. Disconnect generator set wiring harness plug (P7) from control box harness connector (J7) (Figure 1, Item 1), located on rear of control box assembly.
3. Unlock and open control panel (Figure 1, Item 2) by turning quarter-turn fasteners (Figure 1, Item 3).
4. Tag and disconnect control box harness wires from control box components. See FO-3, 60 Hz Control Box Wiring Harness, and FO-4, 400 Hz Control Box Wiring Harness.
5. Release harness connector (J7) (Figure 1, Item 1) from inside wall of control box by removing screws with captive washers (Figure 1, Item 5).
6. Remove clamp (Figure 1, Item 6) by removing screw and captive washer assembly (Figure 1, Item 7) and washer (Figure 1, Item 8). Screw (Figure 1, Item 7) secures panel cable to control box wall.
7. Remove clamp (Figure 1, Item 9) from rear of control panel (Figure 1, Item 2) by removing nut (Figure 1, Item 10) and lockwasher (Figure 1, Item 11). Remove control box wiring harness (Figure 1, Item 4) from control box.

END OF TASK

REPLACE

1. Install control box harness connector (J7) (Figure 1, Item 1) to inside wall of control box. Secure using screws with captive washers (Figure 1, Item 5).
2. Connect control box harness wires to control box components. See FO-3, 60 Hz Control Box Wiring Harness, and FO-4, 400 Hz Control Box Wiring Harness.
3. Replace clamp (Figure 1, Item 6) using screw and captive washer assembly (Figure 1, Item 7) and washer (Figure 1, Item 8). Replace clamp (Figure 1, Item 6) using nut (Figure 1, Item 10) and lockwasher (Figure 1, Item 11).
4. Close control panel (Figure 1, Item 2) and lock in place using quarter-turn fasteners (Figure 1, Item 3).
5. Connect generator set wiring harness plug (P7) to control box harness connector (J7) (Figure 1, Item 1).
6. Close main access cover and lock in place using latches.

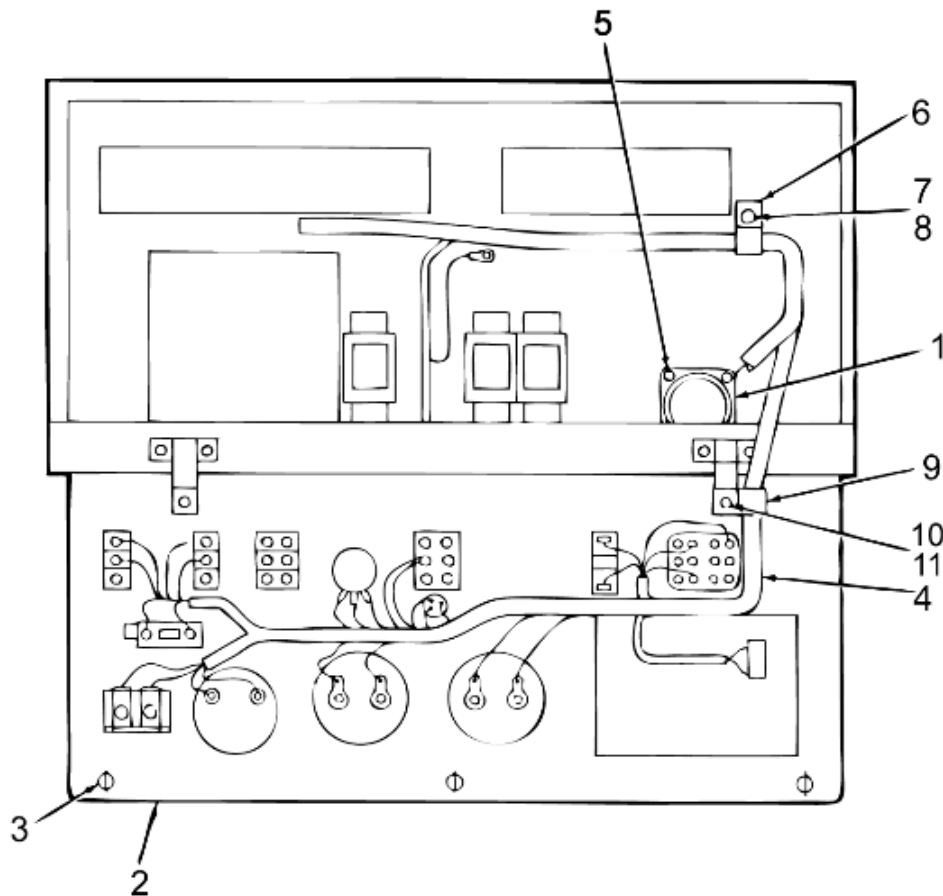


Figure 1. Control Box Wiring Harness.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FUEL TANK: INSPECT, REMOVE, REPLACE

INITIAL SETUP:**Tools and Special Tools**

Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

References

WP 0079

Equipment Condition**Personnel Required**

Power Generation Equipment Repairer 91D (1)

Permanent Magnet Alternator (PMA) removed (WP 0022)

Auxiliary fuel pump removed (WP 0059)

INSPECT

1. Inspect fuel tank (Figure 1, Item 14) for cracks, dents, cuts, or evidence of leakage. Inspect for corrosion.
2. Inspect fuel hoses for cuts, cracks, or other damage. Check for deterioration.
3. Inspect fuel fittings for crossed, stripped, or damaged threads.
4. Remove and replace any component that is damaged to the extent that it will affect the safe operation of the generator set.

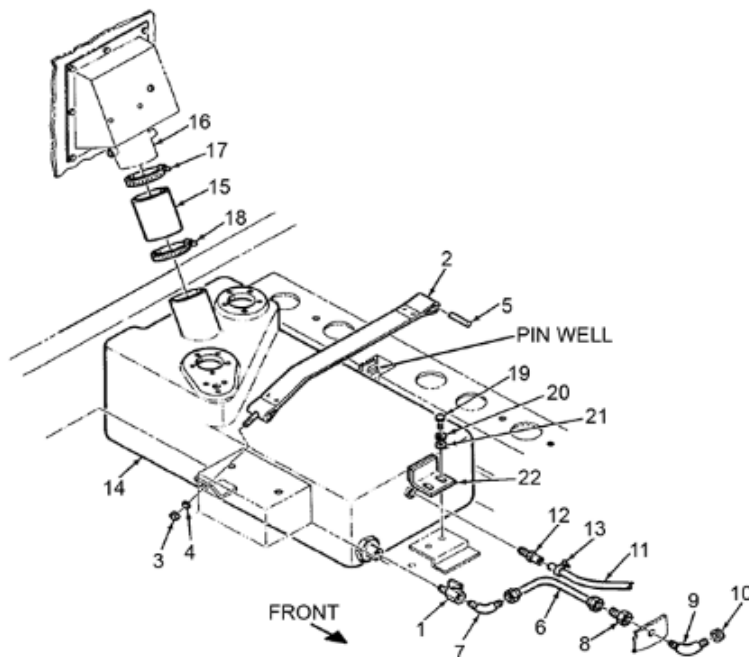
END OF TASK**REMOVE**

1. Place a suitable container (4-gallon capacity) beneath fuel drain (Figure 1, Item 10). Open drain valve (Figure 1, Item 1) and drain fuel into container. Close drain valve (Figure 1, Item 1).
2. Tag and disconnect electrical wiring from fuel tank (Figure 1, Item 14) components.
3. Remove jam nut (Figure 1, Item 3) and washer (Figure 1, Item 4) from hold down bracket (Figure 1, Item 2). Carefully pry pin (Figure 1, Item 5) from pin well to remove hold down bracket (Figure 1, Item 2).
4. Disconnect fuel drain line (Figure 1, Item 6) from bulkhead fitting (Figure 1, Item 8). Remove bulkhead fitting (Figure 1, Item 8), elbow (Figure 1, Item 9), and nut (Figure 1, Item 10).
5. Disconnect fuel return line (Figure 1, Item 11) from fitting (Figure 1, Item 12) by loosening hose clamp (Figure 1, Item 13). Disconnect opposite end of line (to fuel injector) from tee.
6. Remove rubber hose (Figure 1, Item 15) from fuel tank filler neck and fuel pocket (Figure 1, Item 16) by loosening clamps (Figure 1, Items 17 and 18).
7. Remove tank bracket (Figure 1, Item 22) from skid base by removing screws (Figure 1, Item 19), lockwashers (Figure 1, Item 20), and washers (Figure 1, Item 21).
8. Slide fuel tank (Figure 1, Item 14) toward drain valve (Figure 1, Item 1) and lift rear of tank to remove from skid base.
9. Disconnect fuel drain line (Figure 1, Item 6) from elbow (Figure 1, Item 7). Remove elbow (Figure 1, Item 7), drain valve (Figure 1, Item 1), and fitting (Figure 1, Item 12) from fuel tank (Figure 1, Item 14).

END OF TASK

REPLACE

1. Install drain valve (Figure 1, Item 1), elbow (Figure 1, Item 7), and fitting (Figure 1, Item 12) into fuel tank (Figure 1, Item 14). Connect fuel drain line (Figure 1, Item 6) to elbow (Figure 1, Item 7).
2. Place fuel tank (Figure 1, Item 14) into skid base and slide into place. Secure tank bracket (Figure 1, Item 22) using screws (Figure 1, Item 19), lockwashers (Figure 1, Item 20), and washers (Figure 1, Item 21). Torque screws to 30 ft•lb.
3. Connect rubber hose (Figure 1, Item 15) between fuel tank filler neck and fuel pocket (Figure 1, Item 16). Tighten clamps (Figure 1, Items 17 and 18).
4. Connect fuel return line (Figure 1, Item 11) to fitting (Figure 1, Item 12) and tighten hose clamp (Figure 1, Item 13). Connect opposite end of line (to fuel injector) to tee.
5. Install bulkhead fitting (Figure 1, Item 8), elbow (Figure 1, Item 9), and nut (Figure 1, Item 10) onto skid base. Connect drain hose (Figure 1, Item 6) to fitting (Figure 1, Item 8).
6. Install hold down bracket (Figure 1, Item 2) using jam nut (Figure 1, Item 3), washer (Figure 1, Item 4), and pin (Figure 1, Item 5).
7. Connect electrical wiring to fuel tank components. Install PMA (WP 0079). Install auxiliary fuel pump (WP 0059).

**Figure 1. Fuel Tank.****END OF TASK****END OF WORK PACKAGE**

FIELD MAINTENANCE

PREPARATION FOR STORAGE OR SHIPMENT

INITIAL SETUP:**Tools and Special Tools**

Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Suppl 1, W/O Power (WP 0133, Table 2, Item 2)

References - cont'd

WP 0015
WP 0016
WP 0131

Personnel Required

Power Generation Equipment Repairer 91D (1)

Equipment Condition

Engine control Switch OFF (WP 0005)

References

WP 0010

STORAGE**For periods less than 9 months**

1. Start generator set every month and operate for a minimum of 15 minutes or until engine reaches normal operating temperature.

END OF TASK**FOR PERIODS LESS THAN 9 MONTHS**

1. Completely read storage and preservation instructions that follow prior to performing them to avoid unnecessary steps.
2. Operate generator set at 80% load for 1/2 hour. Perform PMCS inspections (WP 0010, WP 0015, and WP 0016) and verify generator set is fully mission capable.
3. Shut down generator. Ensure generator is cool. Drain engine oil and refill engine crankcase with preservative lubricating oil conforming to grade 10, 30, or 15-40 of MIL-PRF 21260. Before refilling, remove engine oil filter and clean this filter or replace with a new filter, replace the o-ring.
4. Locate a container capable of supplying oil to the engine fuel supply lines. Fill container with preservative oil, MIL-PRF-21260, Grade PEI 0, and position container next to the fuel tank suction lines. Drain diesel fuel from the fuel filters and supply lines between the engine and the fuel tank. Replace fuel filter elements. Disconnect the engine fuel supply line at a convenient point close to the fuel tank and connect a flexible line from the container of preservative oil to the engine fuel supply line. Start the engine and operate at its normal rated speed, for the time deemed necessary to ensure that the preservative oils have reached all internal engine components and all the fuel injection system components. This should be between 4 to 7 minutes.

CAUTION

Take special precautions to ensure that the amount of oil drawn into the engine while completing step 5 below will not result in a hydrostatic lock. Do not crank the engine more than 10 seconds. Prior to processing additional engines, process the first engine

FOR PERIODS LESS THAN 9 MONTHS – CONTINUED

as specified below and allow to stand for 12 hours. Manually rotate the engine, or rotate the engine with the starter if manual turning is not possible, to ensure that the amount of oil drawn into combustion chambers allows free rotation of the engine.

5. Allow engine to cool to less than 100 °F. Cover air intake system so that air flow is fully blocked from getting into the engine. With preservative oil supply line still connected crank the engine without starting for 10 seconds. Disconnect preservative oil supply line and reconnect engine fuel lines.
6. Remove batteries from generator, clean dirt, acid and other residues from top of batteries, and check voltage. Charge the batteries if the voltage is less than 12.7 volts for the Optima AGM batteries. Charge the batteries if the voltage is less than 12.5 volts for the flooded wet cell batteries. Store the batteries in a location where they can be charged. Charge wet-cell batteries every 3 months and Optima batteries every 6 months. Charge the Optima batteries with a charger with an AGM setting or that regulates the voltage between 14.25 and 14.75 volts.
7. Drain the Fuel tank.
8. Drain oil from engine. Reinstall drain plug.
9. Upon completion of engine preservation, all openings into the engine such as crankcase breathers, oil filter caps, valve cover breather holes, oil level dipstick/tube, and openings into accessories, shall be sealed with plastic caps or plugs conforming to AIA/NAS 840 and/or AIA/NAS 847, or with tape conforming to SAE-AMS-T-22085.
10. Attach warning tags to the oil dipstick and the control panel start switch stating that: 'The generator set has been preserved. Change fuel filters, fill engine with oil and perform PMCS before starting.'
11. Close all access doors and lock. Store generator set under roof, or inside if available. Do not store under tarp for long periods unless there is significant air flow under tarp and at least 3 ft. of space between tarp and generator set.

FOR PERIODS LESS THAN 9 MONTHS – CONTINUED

SPECIAL PACKAGING INSTRUCTION (MIL-STD-2073)				CODE IDENT 30554		SPI NO.	
PART OR DRAWING NO. MEP-831A/MEP-832A		NATIONAL STOCK NO. 60HZ 6115-01-285-3012 400 HZ 6115-01-287-24314		DATE 110104		REVISION 0	
QUP J001	ICQ 000	UNIT PACK WT MEP-831A 304 lbs. MEP-832A 302 lbs.	UNIT PACK CUBE 14.8	UNIT PACK SIZE MEP-831A/MEP-832A 34.8 x 27.8 x 26.5		SHEET 1 of 2	
<u>Preservation:</u> Generator Set: MIL-P-116, Method IIb Engine: MIL-E-10062, Level A, Type II, Method II <u>Cleaning:</u> MIL-P-116 <u>Driving:</u> MIL-P-116 <u>Packing:</u> Level A: MIL-STD-2073-1A Marking: MIL-ST-129				STEPS	REQ'D	DESCRIPTION	
				1		Preserve generator set IAW MIL-P-116, 11b	
				2		Preserve diesel engine IAW MIL-E-10062, A, II	
				3		Tape air intake and exhaust openings.	
						Tape PPP-T-60, IV	
				4		Container, PPP-B-601, overseas-type (inside diameter) 29.5 x 16 x 21.7 inches	
NOTES: 1. Seal air intake and exhaust openings with tape PPP-T-60, Type IV (or MIL-T-22085, Type II). 2. An internal-type humidity indicator shall be required as specified in MIL-P-116. 3. Generator set shall be packed in a close-fitting plywood box conforming to PPP-B-601, overseas-type. Metal strapping shall be zinc-coated.							

DD Form 2169, 1 Jan 79

Figure 1. Special Packaging Instructions, MEP-831A/MEP-832A (Sheet 1 of 2).

FOR PERIODS LESS THAN 9 MONTHS – CONTINUED

SPECIAL PACKAGING INSTRUCTION (MIL-STD-2073)			CODE IDENT 30554		SPI NO.
PART OR DRAWING NO. MEP-831A/MEP-832A		NATIONAL STOCK NO. 60HZ 6115-01-285-3012 400 HZ 6115-01-287-24314		DATE 110104	REVISION 0
QUP J001	ICQ 000	UNIT PACK WT MEP-831A 304 lbs. MEP-832A 302 lbs.	UNIT PACK CUBE 14.8	UNIT PACK SIZE MEP-831A/MEP-832A 34.8 x 27.8 x 26.5	SHEET 1 of 2
<u>Preservation:</u> Generator Set: MIL-P-116, Method IIb Engine: MIL-E-10062, Level A, Type II, Method II <u>Cleaning:</u> MIL-P-116 <u>Driving:</u> MIL-P-116 <u>Packing:</u> Level A: MIL-STD-2073-1A Marking: MIL-ST-129			STEPS	REQ'D	DESCRIPTION
			1		Preserve generator set IAW MIL-P-116, 11b
			2		Preserve diesel engine IAW MIL-E-10062, A, II
			3		Tape air intake and exhaust openings. Tape PPP-T-60, IV
			4		Container, PPP-B-601, overseas-type (inside diameter) 29.5 x 16 x 21.7 inches
			NOTES: 1. Seal air intake and exhaust openings with tape PPP-T-60, Type IV (or MIL-T-22085, Type II). 2. An internal-type humidity indicator shall be required as specified in MIL-P-116. 3. Generator set shall be packed in a close-fitting plywood box conforming to PPP-B-601, overseas-type. Metal strapping shall be zinc-coated.		

DD Form 2169, 1 Jan 79

Figure 2. Special Packaging Instructions, MEP-831A/MEP-832A (Sheet 2 of 2).

END OF TASK

SHIPMENT

Prepare for shipment in accordance with applicable DOD and commercial transportation rules, regulations and procedures. Refer to UM 4400-123/-124, Defense Travel Regulations, DOD 4500.9-R, Part II, Cargo Movement (WP 0131) and TM 38-250, Preparing Hazardous Materials for Military Air Shipments (WP 0131).

END OF TASK

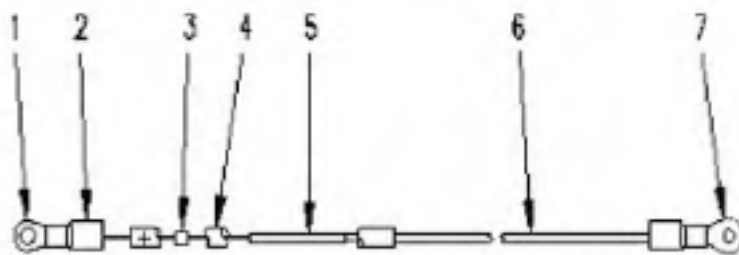
END OF WORK PACKAGE

FIELD MAINTENANCE

GENERAL MAINTENANCE WORK PACKAGE

INITIAL SETUP:**Not Applicable****GENERAL MAINTENANCE INSTRUCTIONS****Table 1. Fold Out Diagrams.**

PART DESCRIPTION	APPLICABLE FIGURE
Control Box Wiring Harness, 60 Hz	FO-5
Engine Wiring Harness, 400 Hz	FO-4

**Figure 1. Typical Manufactured Wire.**

The manufacture of items listed above consists of cutting wires to the length required (see Figure 1) and soldering terminal lugs or connectors on appropriate wires. Use standard shop procedures in the manufacture of these items, as shown below:

1. Cut wire (Figure 1, Item 6) to length required. Strip ends of wire.
2. Install insulation sleeving (Figure 1, Item 2) by sliding over positive wire of diode (Figure 1, Item 3).
3. Crimp terminal lug (Figure 1, Item 1) to positive wire of diode (Figure 1, Item 3).
4. Install insulation sleeving (Figure 1, Item 2) over terminal lug (Figure 1, Item 1). Heat-shrink to a firm fit.
5. Slide splice (Figure 1, Item 5) over negative wire of diode (Figure 1, Item 3) and crimp.
6. Slide wire (Figure 1, Item 6) into splice (Figure 1, Item 5) and crimp.
7. Slide insulation marker (Figure 1, Item 4) over wire (Figure 1, Item 6), splice (Figure 1, Item 5), and diode (Figure 1, Item 3). Heat-shrink to a firm fit.
8. Slide terminal lug (Figure 1, Item 7) onto wire (Figure 1, Item 6) and crimp.
9. Mark appropriate wire number, consisting of the "FROM" termination (a double-headed arrow) and the "TO" termination.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
ILLUSTRATED LIST OF MANUFACTURED ITEMS INTRODUCTION

INITIAL SETUP:

Not Applicable

SCOPE

WP 0086 includes complete instructions for making items authorized to be manufactured or fabricated at the field maintenance level.

HOW TO USE THE INDEX OF MANUFACTURED ITEMS

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the information which covers fabrication criteria.

EXPLANATION OF THE ILLUSTRATIONS OF MANUFACTURED ITEMS

All instructions needed by maintenance personnel to manufacture the item are included in the illustrations. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

INDEX OF MANUFACTURED ITEMS

P/N AND/OR DWG NO	PART DESCRIPTION	REFERENCE
208-4	Hose,Nonmetallic	WP 0086, Figure 1
208-5	Hose,Nonmetallic	WP 0086, Figure 1

END OF WORK PACKAGE

FIELD MAINTENANCE
ILLUSTRATED LIST OF MANUFACTURED ITEMS

INITIAL SETUP:

Not Applicable

ILLUSTRATED LIST OF MANUFACTURED ITEMS

Figure 1. HOSE, NONMETALLIC.

Table 1. HOSE, NONMETALLIC.

PART NUMBER	DIM	FABRICATE FROM
208-4	9.50 in (24.13 cm)	MAKE FROM P/N 208-4 (98441)
208-4	14.20 in (36.07 cm)	MAKE FROM P/N 208-4 (98441)
208-4	40.00 in (101.60 cm)	MAKE FROM P/N 208-4 (98441)
208-4	12.00 in (30.48 cm)	MAKE FROM P/N 208-4 (98441)
208-4	9.00 in (22.86 cm)	MAKE FROM P/N 208-4 (98441)
208-4	3.60 in (9.14 cm)	MAKE FROM P/N 208-4 (98441)
208-5	18.00 in (45.72 cm)	MAKE FROM P/N 208-5 (98441)
208-5	10.00 in (25.40 cm)	MAKE FROM P/N 208-5 (98441)
208-5	15.70 in (39.88 cm)	MAKE FROM P/N 208-5 (98441)

END OF WORK PACKAGE

FIELD MAINTENANCE

TORQUE LIMITS

TORQUE INSTRUCTIONS

Introduction

This work package lists torque ratings for fasteners used on the generator set. When torque values are called out in the maintenance procedures, those torques supersede the torques specified in this work package. Table 1 lists torque limits for standard fasteners installed dry. Table 2 provides formulas for converting the dry torque values to wet. Table 3 lists torque limits for standard metric fasteners installed dry.

Table 1. Torque Limits for Dry Fasteners.

SAE GRADE			0-1-2		3		5	
HEAD MARKINGS								
SIZE			TORQUE		TORQUE		TORQUE	
DIAMETER IN INCHES	THREADS PER INCH	MIL-LIMITERS	FT•LB	(N•M)	FT•LB	(N•M)	FT•LB	(N•M)
1/4	20	6.350	6	8	9	12	10	14
1/4	28	6.350	7	9	10	13	11	15
5/16	18	7.937	12	16	17	23	19	26
5/16	24	7.937	13	18	18	25	21	28
3/8	16	9.525	20	27	30	40	33	45
3/8	24	9.525	22	30	33	44	36	49
7/16	14	11.112	32	43	47	64	54	73
7/16	20	11.112	35	47	51	69	59	80
1/2	13	12.700	47	64	69	93	78	106
1/2	20	12.700	51	69	75	102	85	115
9/16	12	14.287	69	94	103	140	114	155
9/16	18	14.287	75	102	112	152	124	168
5/8	11	15.875	96	130	145	197	154	209
5/8	28	15.875	105	142	158	214	168	228
3/4	10	19.050	155	210	234	317	257	348
3/4	26	19.050	169	229	255	346	280	380
7/8	9	22.225	206	279	372	504	382	518
7/8	24	22.225	225	304	405	550	416	565

TORQUE INSTRUCTIONS – CONTINUED

Table 1. Torque Limits for Dry Fasteners. – Continued

SAE GRADE			0-1-2		3		5	
HEAD MARKINGS								
SIZE			TORQUE		TORQUE		TORQUE	
DIAMETER IN INCHES	THREADS PER INCH	MIL-LIMITERS	FT•LB	(N•M)	FT•LB	(N•M)	FT•LB	(N•M)
1	8	25.400	310	420	551	747	587	796
1	14	25.400	338	458	601	814	640	867
1/4	20	6.350	6	8	9	12	10	14
1/4	28	6.350	7	9	10	13	11	15
5/16	18	7.937	12	16	17	23	19	26
5/16	24	7.937	13	18	18	25	21	28
3/8	16	9.525	20	27	30	40	33	45
3/8	24	9.525	22	30	33	44	36	49
7/16	14	11.112	32	43	47	64	54	73
7/16	20	11.112	35	47	51	69	59	80
1/2	13	12.700	47	64	69	93	78	106
1/2	20	12.700	51	69	75	102	85	115
9/16	12	14.287	69	94	103	140	114	155
9/16	18	14.287	75	102	112	152	124	168
5/8	11	15.875	96	130	145	197	154	209
5/8	28	15.875	105	142	158	214	168	228
3/4	10	19.050	155	210	234	317	257	348
3/4	26	19.050	169	229	255	346	280	380
7/8	9	22.225	206	279	372	504	382	518
7/8	24	22.225	225	304	405	550	416	565
1	8	25.400	310	420	551	747	587	796
1	14	25.400	338	458	601	814	640	867

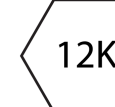
Table 2. Effect of Lubrication on Torque.

Lubricant	TORQUE RATING IN FOOT-POUNDS	
	5/16-18 Thread/Inch	1/2-13 Thread/Inch

TORQUE INSTRUCTIONS – CONTINUED**Table 2. Effect of Lubrication on Torque. – Continued**

	TORQUE RATING IN FOOT-POUNDS	
NO LUBE, Steel	29	121
Plated and cleaned	19 (66%)	90 (26%)
SAE 20 Oil	18 (38%)	87 (28%)
SAE 40 Oil	17 (41%)	83 (31%)
Plated and SAE 30	16 (45%)	79 (35%)
White Grease	16 (45%)	79 (35%)
White Moly Film	14 (52%)	66 (45%)
Graphite and Oil	13 (55%)	62 (49%)

Table 3. Torque Limits for Dry Fasteners (Metric).

										
			STANDARD 5D		STANDARD 8G		STANDARD 10K		STANDARD 12K	
DIAM-ETER IN MIL- LIME- TERS	COARSE THREAD PITCH	INCHES	FT•LB	(N•M)	FT•LB	(N•M)	FT•LB	(N•M)	FT•LB	(N•M)
6	1.00	0.2362	5	7	6	8	8	11	10	14
8	1.00	0.3150	10	14	16	22	22	30	27	37
10	1.25	0.3937	19	26	31	42	40	54	49	66
12	1.25	0.4624	34	46	54	73	70	95	86	117
14	1.25	0.5512	55	75	89	121	117	159	137	186
16	2.00	0.6299	83	113	132	179	175	237	208	282
18	2.00	0.7087	111	150	182	247	236	320	283	384
22	2.50	0.8771	182	247	284	385	394	534	464	629
24	3.00	0.9449	261	354	419	568	570	773	689	934

END OF WORK PACKAGE

CHAPTER 7

OPERATOR AND FIELD PARTS INFORMATION

OPERATOR AND FIELD MAINTENANCE

INTRODUCTION

SCOPE

This RPSTL lists and authorizes spares and repair parts; special tools; special Test, Measurement, and Diagnostic Equipment (TMDE); and other special support equipment required for performance of operator and field maintenance of the 3 kW TACTICAL QUIET GENERATOR SET. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the Source, Maintenance, and Recoverability (SMR) codes.

GENERAL

In addition to the Introduction work package, this RPSTL is divided into the following work packages.

1. **Repair Parts List Work Packages.** Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the Work Packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.
2. **Special Tools List Work Packages.** Work Packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.
3. **Cross-Reference Indexes Work Packages.** There are two cross-reference indexes work packages in this RPSTL: the National Stock Number (NSN) Index work package and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout. This entry may be subdivided into 4 subentries, one for each service.

Table 1. SMR Code Explanation.

SOURCE CODE XX	MAINTENANCE CODE XX	RECOVERABILITY CODE X
1st two positions: How to get an item.	3rd position: Who can install, replace, or use the item.	4th position: Who can do complete repair* on the item
		5th position: Who determines disposition action on unserviceable items.

*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

SCOPE – CONTINUED

Source Code. The source code tells you how you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

SOURCE CODE	APPLICATION/EXPLANATION
PA	
PB	
PC	
PD	
PE	
PF	
PG	
PH	
PR	
PZ	
KD	
KF	
KB	
MF-Made at field	
MH-Made at below depot/sustainment level	
ML-Made at SRA	
MD-Made at depot	
MG-Navy only	
AF-Assembled by field	
AH-Assembled by below depot sustainment level	
AL-Assembled by SRA	
AD-Assembled by depot	
AG-Navy only	
XA	
XB	
XC	
XD	

NOTE

Items coded PC are subject to deterioration.

Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the third position of the SMR code.

Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the third position of the SMR code. The complete kit must be requisitioned and applied.

Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the third position code of the SMR code, but the source code indicates it is made at higher level, order the item from the higher level of maintenance.

Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the third position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.

Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to NOTE below.)

If an item is not available from salvage, order it using the CAGEC and part number.

Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's part number.

Item is not stocked. Order an XD-coded item through local purchase or normal supply channels using the CAGEC and part number given, if no NSN is available.

SCOPE – CONTINUED**NOTE**

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance:

MAINTENANCE CODE	APPLICATION/EXPLANATION
C -	Crew
F -	Field maintenance can remove, replace, and use the item.
H -	Below Depot Sustainment maintenance can remove, replace, and use the item.
L -	Specialized repair activity can remove, replace, and use the item.
G -	Afloat and ashore intermediate maintenance can remove, replace, and use the item (Navy only)
K -	Contractor facility can remove, replace, and use the item
Z -	Item is not authorized to be removed, replace, or used at any maintenance level
D -	Depot can remove, replace, and use the item

NOTE

Army will use C in the third position. However, for joint service publications, other services may use O.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

MAINTENANCE CODE	APPLICATION/EXPLANATION
C -	Crew (operator) is the lowest class that can do complete repair.
F -	Field is the lowest level that can do complete repair of the item.
H -	Below Depot Sustainment is the lowest level that can do complete repair of the item.
L -	Specialized repair activity is the lowest level that can do complete repair of the item.
D -	Depot is the lowest level that can do complete repair of the item.
G -	Both afloat and ashore intermediate levels are capable of complete repair of item. (Navy only)

SCOPE – CONTINUED

MAINTENANCE CODE	APPLICATION/EXPLANATION
K -	Complete repair is done at contractor facility
Z -	Nonreparable. No repair is authorized.
B -	No repair is authorized. No parts or special tools are authorized for maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

RECOVERABILITY CODE	APPLICATION/EXPLANATION
Z -	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
F -	Reparable item. When uneconomically reparable, condemn and dispose of the item at the field level.
H -	Reparable item. When uneconomically reparable, condemn and dispose of the item at the below depot sustainment level.
D -	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L -	Reparable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
A -	Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.
G -	Filed level reparable item. Condemn and dispose at either afloat or ashore intermediate levels. (Navy only)
K -	Reparable item. Condemnation and disposal to be performed at contractor facility

NSN (Column (3)). The NSN for the item is listed in this column.

CAGEC (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

PART NUMBER (Column (5)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different part number from the number listed.

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following information:

1. The federal item name, and when required, a minimum description to identify the item.
2. Part numbers of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.

SCOPE – CONTINUED

3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

1. National Stock Number (NSN) Index Work Package. NSN's in this index are listed in National Item Identification Number (NIIN) sequence.
 - STOCK NUMBER Column. This column lists the NSN in NIIN sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number. For example, if the NSN is 5385-01-574-1476, the NIIN is 01-574-1476.
 - FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.
 - ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.
2. Part Number (P/N) Index Work Package. Part numbers in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).
 - PART NUMBER Column. Indicates the part number assigned to the item.
 - FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.
 - ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

SPECIAL INFORMATION

UOC. The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC:..." in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the UOCs used in the RPSTL are:

CODE	USED ON
LQR	Generator Set, MEP 831A (60 Hz)
LQQ	Generator Set, MEP 832A (400 Hz)

Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN / Part Number (P/N) Index work packages and the bulk material list in the repair parts list work package.

Illustrations List. The illustrations in this RPSTL contain field authorized items. Illustrations published in (enter applicable TM number for the higher maintenance level RPSTL, e.g., for field, below depot sustainment, etc.) that contain field authorized items also appear in this RPSTL. The tabular list in the repair parts list work package contains only those parts coded "F" in the third position of the SMR code, therefore, there may be a break in the item number sequence.

SCOPE – CONTINUED**HOW TO LOCATE REPAIR PARTS****1. When NSNs or Part Numbers Are Not Known**

First. Using the Table of Contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the Repair Parts List work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN is Known

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When Part Number Is Known

First. If you have the part number and not the NSN, look in the PART NUMBER column of the Part Number Index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

ABBREVIATIONS

Abbreviations used in this manual are listed in ASME Y14.38.

END OF WORK PACKAGE

OPERATOR AND FIELD MAINTENANCE
GROUP 00 GENERATOR SET

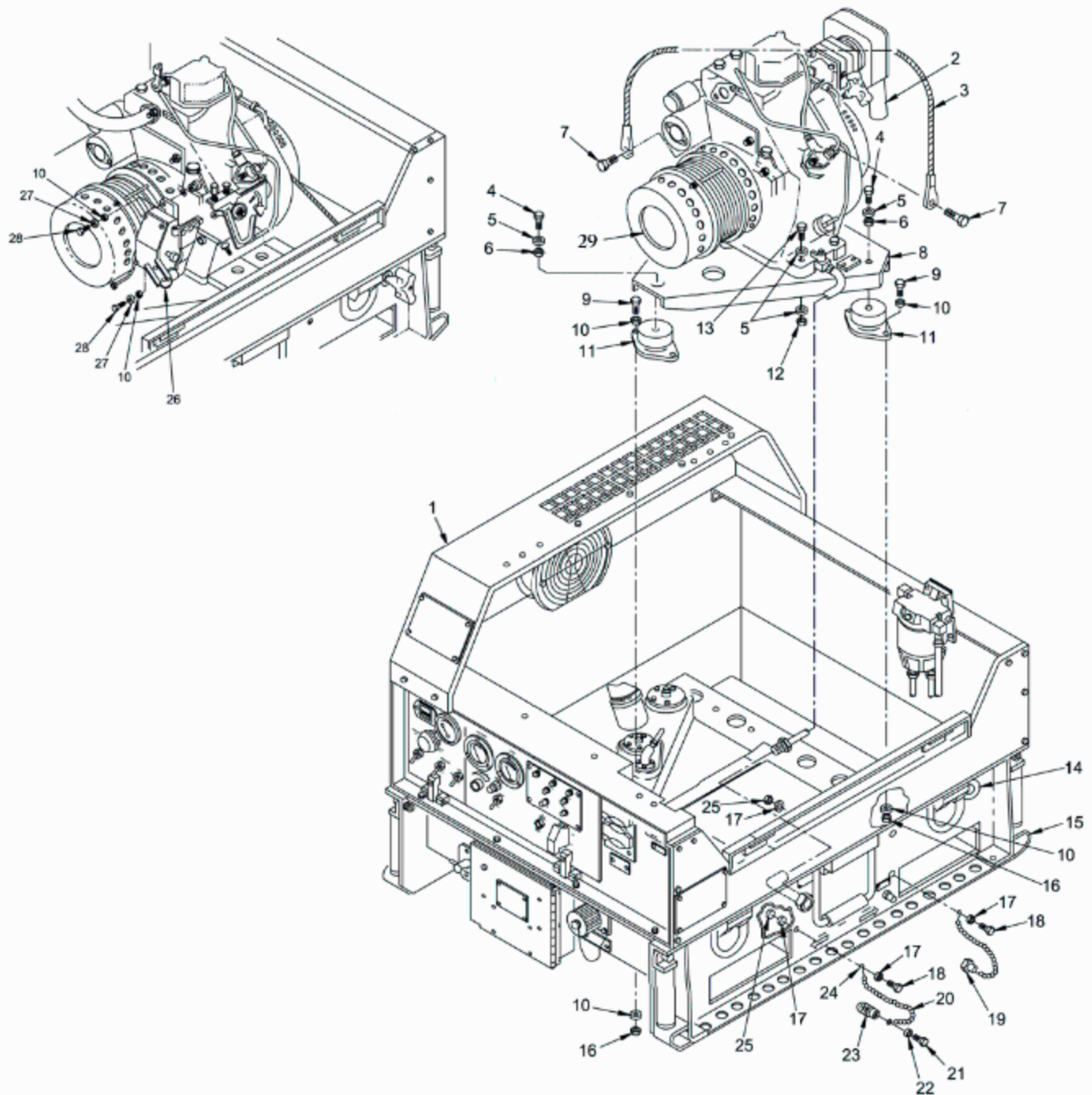


Figure 1. GENERATOR SET.

(1)	(2) SMR CODE			(3)	(4)	(5)	(6)	(7)
ITEM NO.	a. ARMY	b. AIR FORCE	c. USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 00 GENERATOR SET								
FIGURE 1 GENERATOR SET								
1	PEFFF	PEOFF	PEOFF	6115-01-285-3012	30554	98-831A	GENERATOR SET 3 kW, 60 Hz, TACTI- CAL QUIET UOC: LQR	1
1	PEFFF	PEOFF	PEOFF	6115-01-287-2431	30554	98-832A	GENERATOR SET 3 kW, 400 Hz, TACTI- CAL QUIET UOC: LQQ	1
1	XCFFF	XCOFF	XCOFF		30554	98-19503	. GENERATOR SET ASSEM 60HZ UOC: LQR	1
1	XCFFF	XCOFF	XCOFF		30554	98-19504	. GENERATOR SET ASSEM 400 HZ UOC: LQQ	1
2	PAFZZ	PAOZZ	PAOZZ	4720-01-476-9814	0AK42	186	. . HOSE ASSEMBLY,AIR DUCT	1
3	XBFZZ	XBOZZ	XBOZZ	4010-01-497-2675	2V507	8925T5	. . CABLE, LIFTING	1
4	PAFZZ	PAFZZ	PAFZZ	5305-01-380-3395	80204	B18231B10025NF	. . SCREW,CAP,HEXAGON HEAD	3
5	PAFZZ	PAFZZ	PAFZZ	5310-01-280-5796	96906	MS27183-57	. . WASHER,FLAT 3/8	11
6	PAFZZ	PAFZZ	PAFZZ	5310-01-387-2150	15526	DIN127-B10-FST-B3B	. . WASHER,LOCK	3
7	PAFZZ	PAOZZ	PAOZZ	5305-01-303-5631	05047	AES07M08B020CH1 A81	. . SCREW,CAP,HEXAGON HEAD	2
8	XBFZZ	XBFZZ	XBFZZ		30554	98-19563	. . PLATE,MOUNTING,ENGI	1
9	PAFZZ	PAFZZ	PAFZZ	5305-01-476-9099	30554	88-20260-44	. . SCREW,CAP,HEXAGON HEAD	6
10	PAFZZ	PAOZZ	PAOZZ	5310-00-081-4219	96906	MS27183-12	. . WASHER,FLAT, 5/16	14
11	PAFZZ	PAFZZ	PAFZZ	5340-01-477-1375	93742	409320-001	. . MOUNT,RESILIENT,GEN	3
12	PAFZZ	PAFZZ	PAFZZ	5310-00-050-6646	96906	MS17830-6C	. . NUT,SELF-LOCK 3/8-16	4
13	PAFZZ	PAFZZ	PAFZZ	5305-01-476-9095	30554	B1821BH037C175N	. . SCREW,CAP,HEXAGON HEAD	4
14	PAFZZ	PAOZZ	PAOZZ	5975-01-199-9033	83879	ABB-100	. . BUSHING,ELECTRICAL	1
15	XBFZZ	XBFZZ	XBFZZ		30554	98-19562	. . BASE,MOTOR-GENERATO	1
16	PAFZZ	PAFZZ	PAFZZ	5310-00-984-3806	81349	M45913/1-5CG5C	. . NUT,SELF-LOCKING,HEX 5/16-18	6
17	PAFZZ	PAOZZ	PAOZZ	5310-01-533-6741	30554	88-20033-8A	. . WASHER,FLAT, #8	4
18	PAFZZ	PAOZZ	PAOZZ	5305-01-531-5580	30554	88-20260-13	. . SCREW,CAP,HEXAGON HEAD	2
19	PAFZZ	PAOZZ	PAOZZ	4730-00-812-1333	30554	69-539-2	. . CAP,TUBE	1
20	XBFZZ	XBOZZ	XBOZZ		81348	TYPEII,GRADECL3	. . CHAIN,SASH	2
21	PAFZZ	PAOZZ	PAOZZ	5305-01-477-9613	2V507	90081A108	. . SCREW,DRIVE	1
22	PAFZA	PAOZZ	PAOZZ	5310-01-477-9626	30554	88-20033-4A	. . WASHER,FLAT	1

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
23	XDFZZ	XDOZZ	XDOZZ		30554	98-19747	. . PLUG, PIPE	1
24	PAFZZ	PAOZZ	PAOZZ	4030-00-270-5436	96906	MS87006-3	. . HOOK,CHAIN,S	2
25	PAFZZ	PAOZZ	PAOZZ	5310-00-982-6814	80205	MS21044C08	. . NUT,SELF-LOCKING #8	2
26	XBFFF	XBOOO	XBOOO	2920-01-477-1320	0BXW5	ADG150	. . . ACTUATOR ASSEMBLY (SEE WP 0093, FIGURE 5 FOR PARTS BREAK- DOWN)	1
27	PAFZZ	PAOZZ	PAOZZ	5310-12-125-0056	D8286	DIN127-B8-FST	. . WASHER,LOCK	2
28	PAFZZ	PAOZZ	PAOZZ	5305-01-381-1202	05047	AES07M08B025CG7 A81	. . SCREW,CAP,HEXAGON HEAD	2
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 01 ENGINE ASSEMBLY, DIESEL

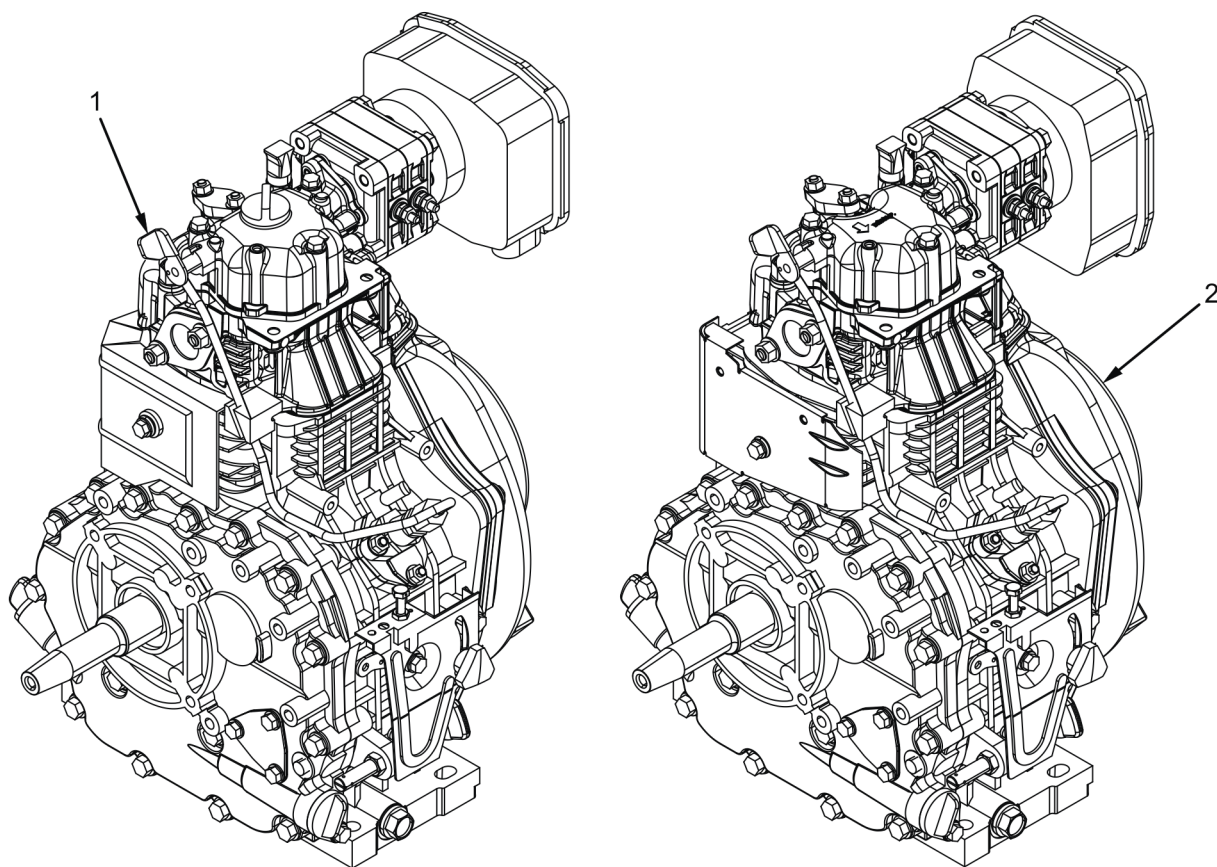


Figure 2. ENGINE ASSEMBLY, DIESEL.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
							GROUP 01 ENGINE ASSEMBLY, DIESEL	
							FIGURE 2 ENGINE ASSEMBLY, DIESEL	
1	PAFHH	PAFHH	PAFHH	2815-01-465-5993	S4163	L70AE-DEGFR	. ENGINE, DIESEL (SEE TM 9-2815-257-24P FOR PARTS BREAK- DOWN)	1
2	PAFHH	PAFHH	PAFHH	2815-01-660-5994	S4163	L70N6EZ0T9EAFD	. ENGINE, DIESEL (SEE TM 9-2815-257-24P FOR PARTS BREAK- DOWN)	1
							END OF FIGURE	

OPERATOR AND FIELD MAINTENANCE
GROUP 0101 GOVERNOR CONTROL MODULE

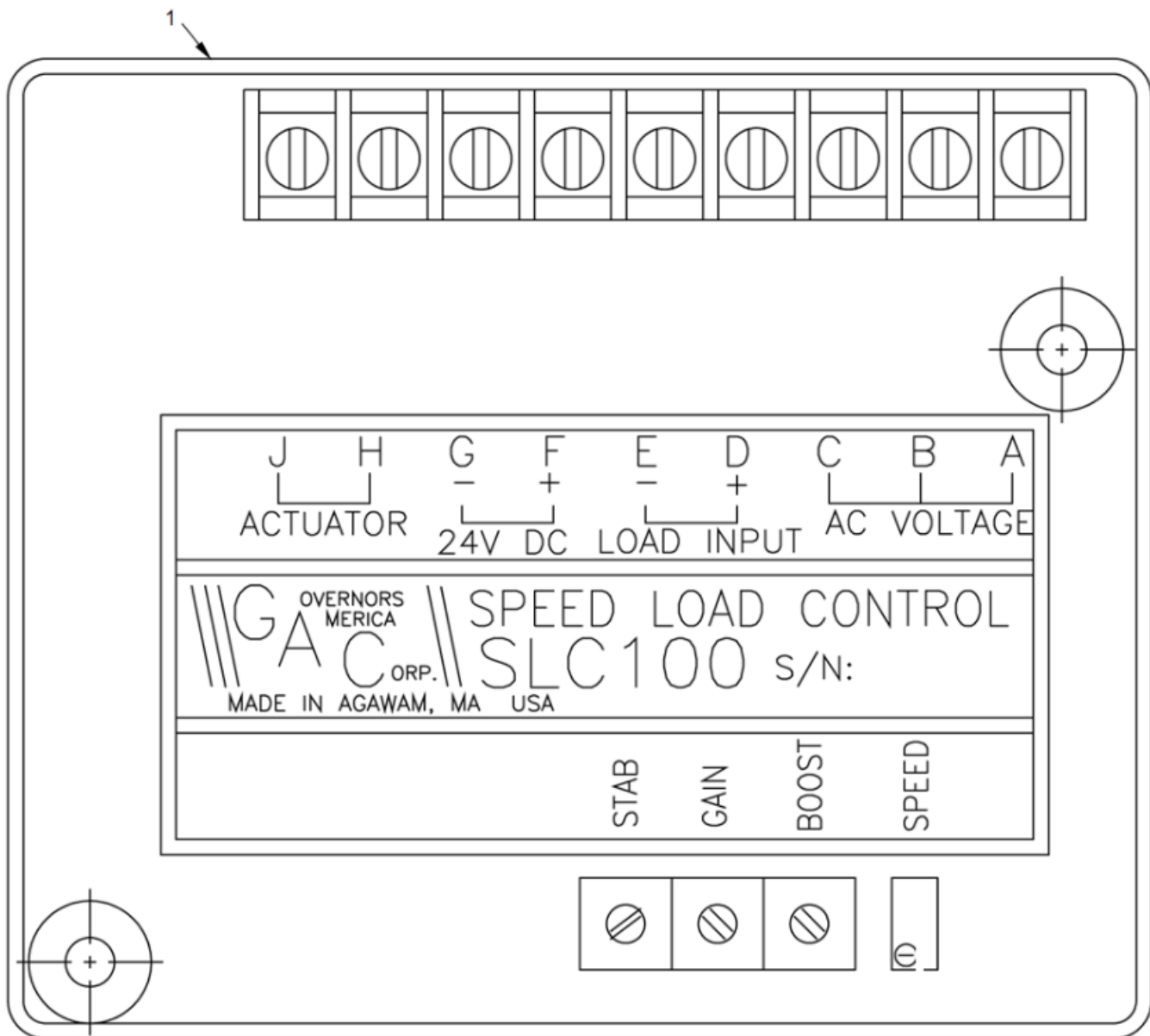


Figure 3. GOVERNOR CONTROL MODULE.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
1	PAFZZ	PAOZZ	PAOZZ	2990-01-477-1371	0BXW5	SLC100	GROUP 0101 GOVERNOR CONTROL MODULE FIGURE 3 GOVERNOR CONTROL MOD- ULE .. GOVERNOR CONTROL MODULE 1	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 010101 GOVERNOR ACTUATOR ASSEMBLY

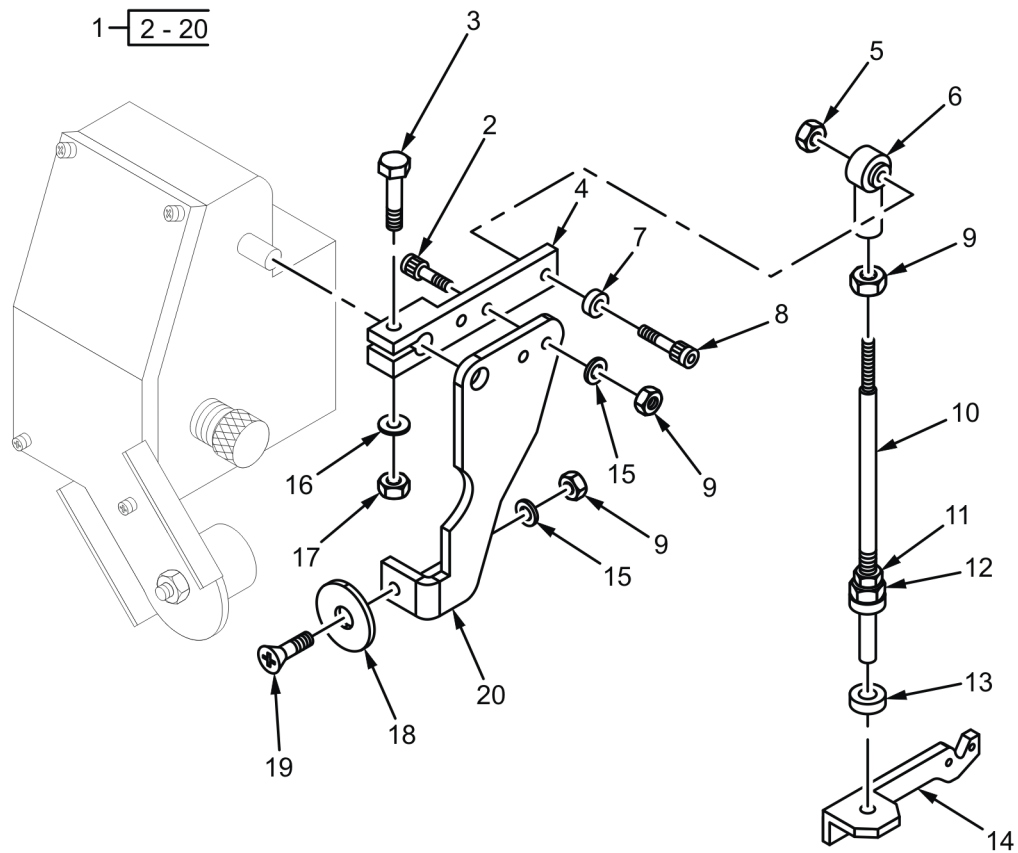


Figure 4. GOVERNOR ACTUATOR ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a.	b.	c.					
	ARMY	AIR FORCE	USMC					
GROUP 010101 GOVERNOR ACTUA- TOR ASSEMBLY FIGURE 4 GOVERNOR ACTUATOR ASSEMBLY								
1	PAFZZ	PAOZZ	PAOZZ	2920-01-477-1320	0BXW5	ADG150	. . . ACTUATOR, ELECTRO-M	1
2	PAFZZ	PAOZZ	PAOZZ	5305-01-476-9231	0BXW5	HW01-900	. . . SCREW,CAP,SOCKET HEAD	2
3	PAFZZ	PAOZZ	PAOZZ	5305-01-477-9615	0BXW5	HW01-106	. . . SCREW,CAP,HEXAGON HEAD	1
4	XDFZZ	XDOZZ	XDOZZ		0BXW5	LE154	. . . LEVER	1
5	PAFZZ	PAOZZ	PAOZZ	5310-01-012-3595	81205	2740-0003	. . . NUT,PLAIN,ASSEMBLED	1
6	PAFZZ	PAOZZ	PAOZZ	3120-01-477-2736	0BXW5	BR100	. . . BEARING, PLAIN, ROD END	1
7	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9198	0BXW5	HW02-218	. . . WASHER,FLAT	1
8	PAFZZ	PAOZZ	PAOZZ	5305-01-477-9616	0BXW5	HW01-137	. . . SCREW,CAP,HEXAGON HEAD	1
9	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9206	0BXW5	HW309	. . . NUT,PLAIN,HEXAGON	4
10	PAFZZ	PAOZZ	PAOZZ	2910-01-476-9751	1Y249	RD150	. . . LINKAGE,TELESCOPING	1
11	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9196	0BXW5	HW03-303	. . . NUT,PLAIN,HEXAGON	1
12	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9200	0BXW5	NT102	. . . NUT,PLAIN,SINGLE BA	1
13	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9201	0BXW5	WA102	. . . WASHER,CONVEX	1
14	XDFZZ	XDOZZ	XDOZZ		0BXW5	LK150	. . . BRACKET,LINK	1
15	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9228	0BXW5	HW02-213	. . . WASHER,LOCK	3
16	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9203	0BXW5	HW206	. . . WASHER,LOCK	1
17	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9213	0BXW5	HW03-300	. . . NUT,PLAIN,HEXAGON	1
18	XDFZZ	XDOZZ	XDOZZ		0BXW5	PL152	. . . PLATE	1
19	PAFZZ	PAOZZ	PAOZZ	5305-01-476-9223	0BXW5	HW198	. . . SCREW,MACHINE	1
20	XDFZZ	XDOZZ	XDOZZ		0BXW5	LE157	. . . LEVER	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 02 PERMANENT MAGNET ALTERNATOR (PMA)

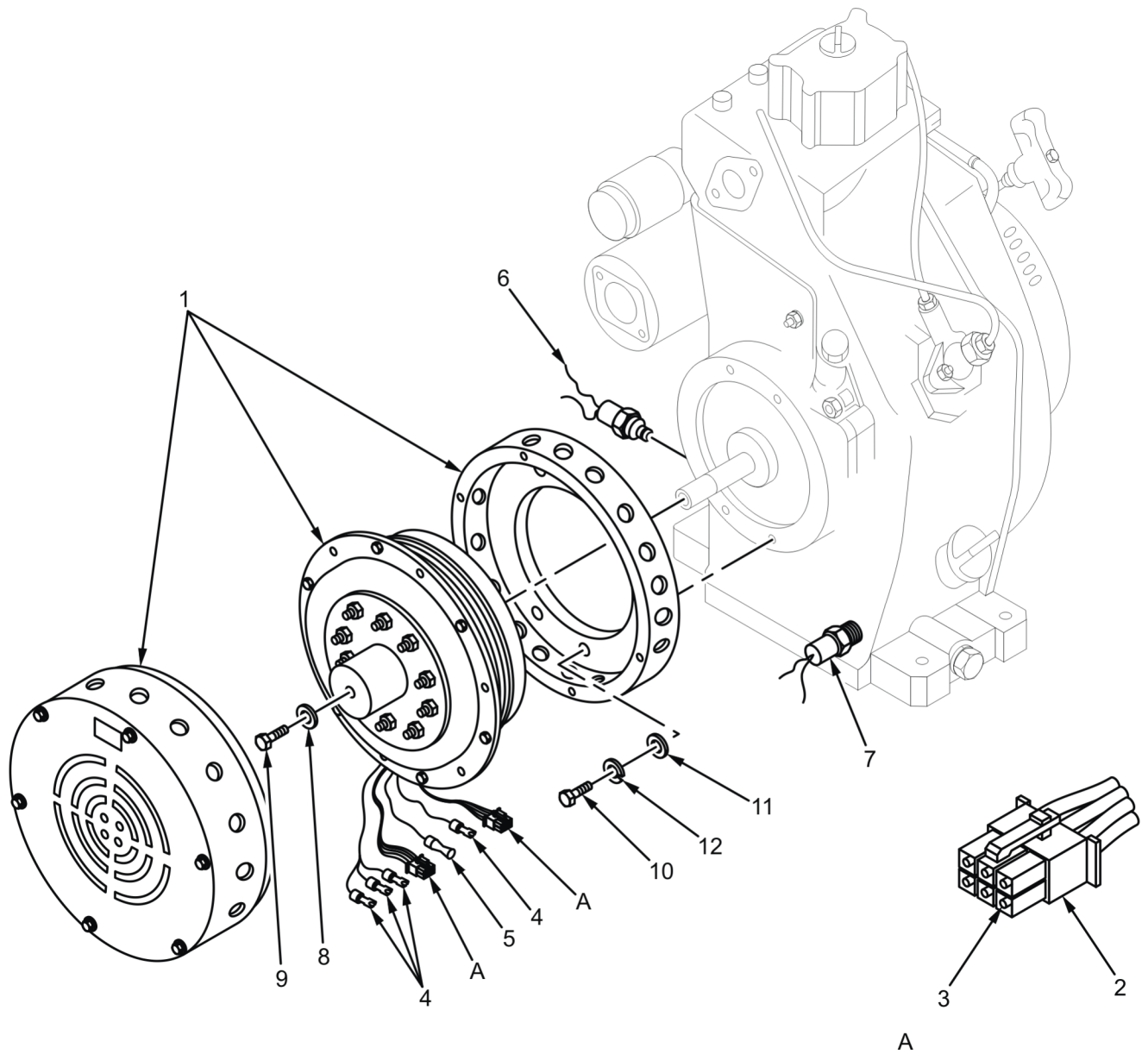


Figure 5. PERMANENT MAGNET ALTERNATOR (PMA) (Sheet 1 of 2).

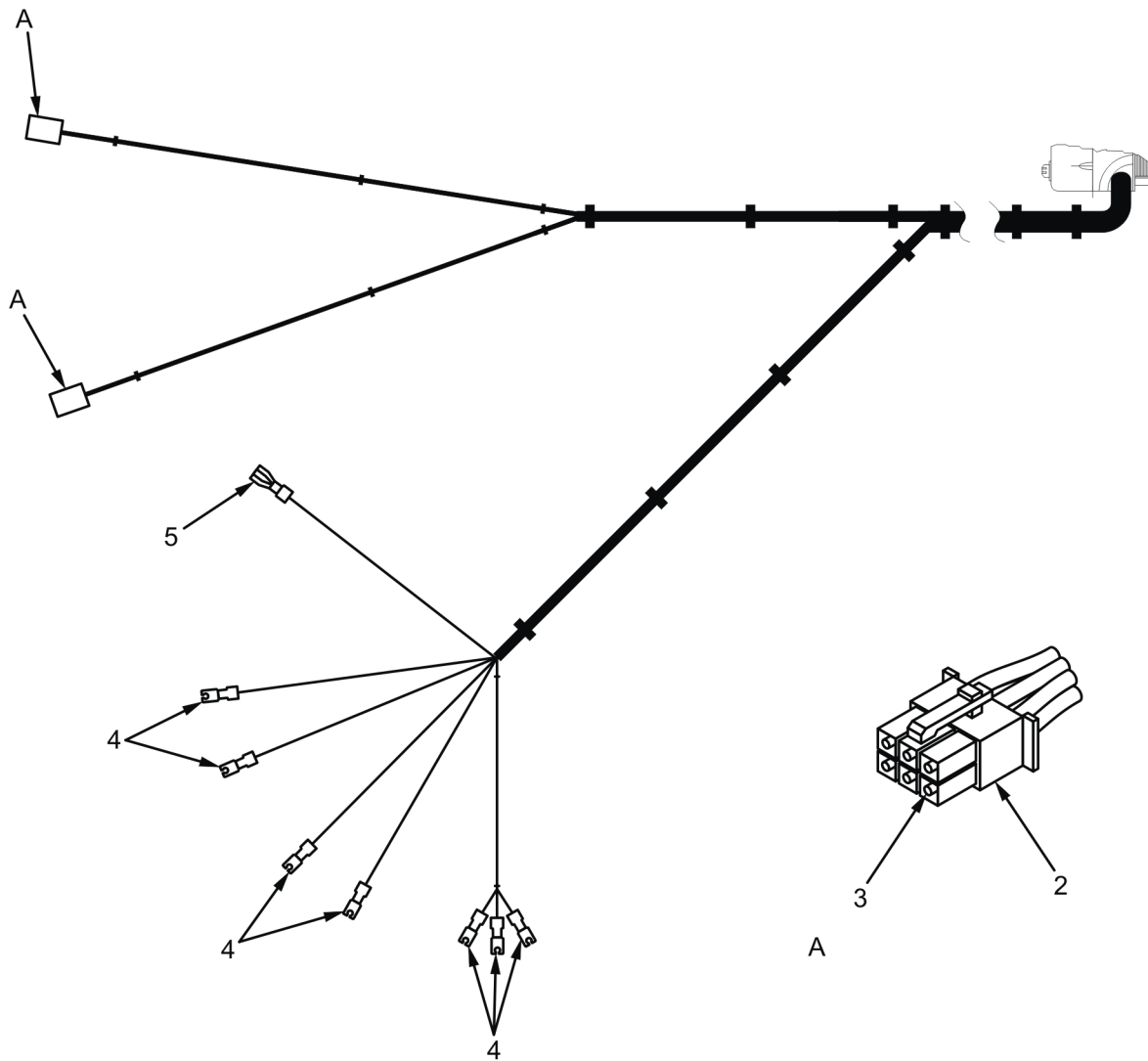


Figure 5. PERMANENT MAGNET ALTERNATOR (PMA) (Sheet 2 of 2).

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 02 PERMANENT MAGNET ALTERNATOR (PMA)								
FIGURE 5 PERMANENT MAGNET ALTERNATOR (PMA)								
1	PAFZZ	PAOZZ	PAFZZ	6115-01-476-8607	93742	98-19634	. ALTERNATOR, PERM. MAG. ASSY	1
2	PAFZZ	PAFZZ	PAFZZ	5935-01-415-6239	27264	39-01-2060	. . CONNECTOR BODY,PLUG	2
3	PAFZZ	PAFZZ	PAFZZ	5999-01-477-0593	27264	39-00-0077	. . CONTACT,ELECTRICAL	2
4	PAFZZ	PAFZZ	PAFZZ	5940-01-425-2020	06383	PN18-6LF-C	. . TERMINAL,LUG	7
5	XDFZZ	XDFZZ	XDFZZ		00779	93-350816-2	. . CONTACT,ELECTRICAL	1
6	PAFZZ	PAOZZ	PAOZZ	5930-01-477-9743	30554	98-19720	. . SWITCH,THERMOSTATIC	1
7	PAFZZ	PAOZZ	PAOZZ	5930-01-478-0122	30554	98-19537	. . SWITCH,PRESSURE	1
8	PAFZZ	PAFZZ	PAFZZ	5310-01-476-9103	30554	98-19662	. . WASHER,FLAT	1
9	PAFZZ	PAFZZ	PAFZZ	5306-00-050-1238	80204	B1821BH031F075N	. . BOLT,MACHINE	1
10	PAFZZ	PAFZZ	PAFZZ	5305-01-477-0236	30554	98-19730	. . SCREW,CAP,SOCKET HEAD	4
11	PAFZZ	PAOZZ	PAOZZ	5310-00-081-4219	96906	MS27183-12	. . WASHER,FLAT, 5/16	4
12	PAFZZ	PAOZZ	PAOZZ	5310-12-125-0056	D8286	DIN127-B8-FST	. . WASHER,LOCK	4
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0301 BATTERY CHARGING REGULATOR

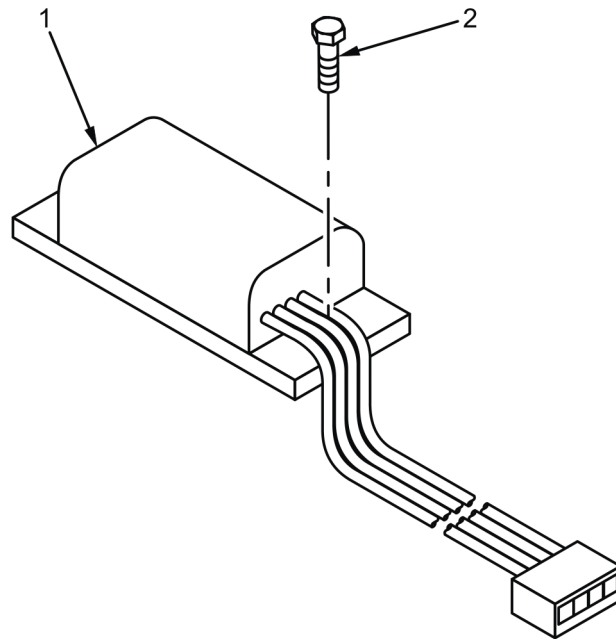


Figure 6. BATTERY CHARGING REGULATOR.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
							GROUP 0301 BATTERY CHARGING REGULATOR	
							FIGURE 6 BATTERY CHARGING REGU- LATOR	
1	PAFZZ	PAOZZ	PAOZZ	6130-01-476-9148	30554	98-19715	. . CHARGER, BATTERY	1
2	PAFZZ	PAOZZ	PAOZZ	5305-01-378-7899	30554	88-20260-22	. . SCREW, CAP, HEX	2
							END OF FIGURE	

OPERATOR AND FIELD MAINTENANCE

GROUP 0302 BATTERY

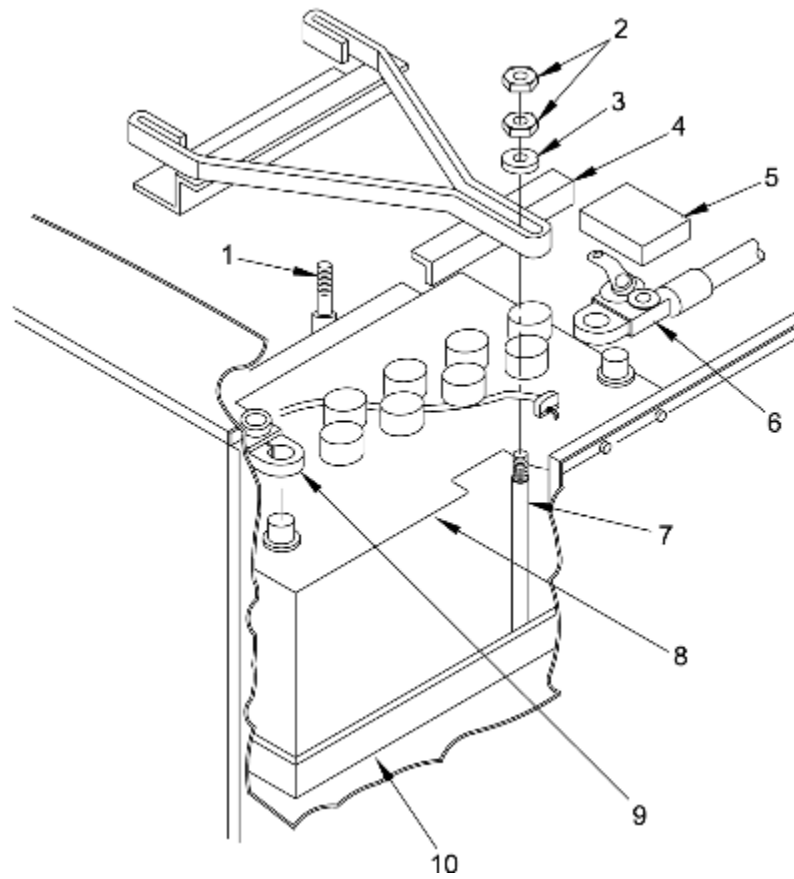


Figure 7. BATTERY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0302 BATTERY								
FIGURE 7 BATTERY								
1	PAFZZ	PAOZZ	PAOZZ	5306-01-519-1696	30554	98-19567-01	. . BOLT,HOOK	2
2	PAFZZ	PAOZZ	PAOZZ	5310-00-997-1888	80205	MS35649-2252	. . NUT,PLAIN,HEXAGON	3
3	PAFZZ	PAOZZ	PAOZZ	5310-01-280-5796	96906	MS27183-57	. . WASHER,FLAT	3
4	XBFZZ	XBOZZ	XBOZZ	6160-01-519-0139	30554	98-19566	. . RETAINER,BATTERY	2
5	PAFZZ	PAOZZ	PAOZZ	5940-01-476-9076	93742	98-19699	. . COVER,TERMINAL	2
6	PAFZZ	PAOZZ	PAOZZ	6150-01-476-9061	30554	98-19593	. . LEAD,STORAGE BATTERY (POS)	1
7	PAFZZ	PAOZZ	PAOZZ	5306-01-533-1812	30554	98-19567-02	. . BOLT, HOOK	1
8	PAFZA	PAOZA	PAOZA	6140-01-476-8945	63017	RG24-15A1	. . BATTERY, STORAGE (PRIMARY BAT- TERY SEALED)	1
8	PAFZA	PAOZA	PAOZA	6130-01-610-6102	30554	98-19766	. . BATTERY, STORAGE (ALTERNATE BATTERY SEALED)	1
9	PAFZZ	PAOZZ	PAOZZ	6150-01-476-9059	30554	98-19594	. . LEAD,STORAGE BATTERY (NEG)	1
10	XBFZZ	XBOZZ	XBOZZ		30554	98-19558	. . TRAY,BATTERY	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0303 BATTERY CABLES

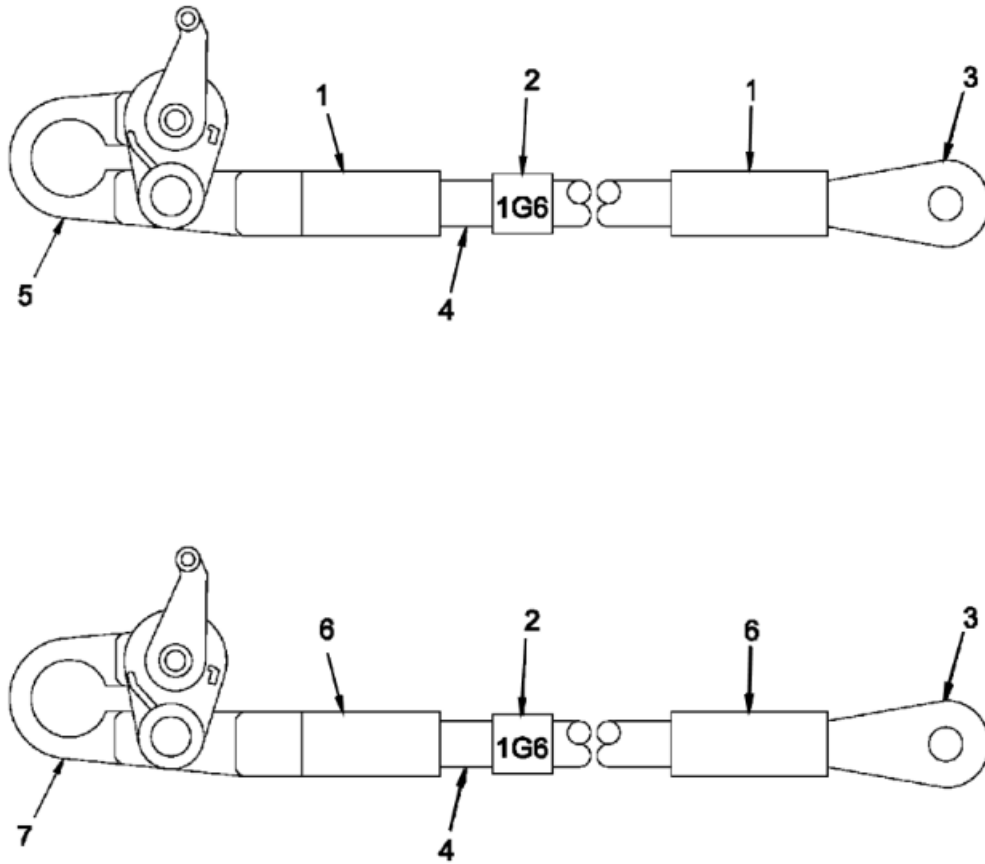


Figure 8. BATTERY CABLES.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
a.	b.	c.						
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 0303 BATTERY CABLES								
FIGURE 8 BATTERY CABLES								
1	PAFZZ	PAFZZ	PAFZZ	5970-00-915-9186	3B150	344636-8RED	. . INSULATION, SLEEVE	2
2	XBFZZ	XBFZZ	XBFZZ	5970-01-593-8463	1JX75	88-20541-16	. . INSULATION, SLEEVING	2
3	PAFZZ	PAFZZ	PAFZZ	5940-00-557-4343	96906	MS25036-121	. . TERMINAL, LUG	2
4	PAFZZ	PAFZZ	PAFZZ	6145-01-029-6544	81343	J1127-TYPE SGT-4A WG-BLK	. . WIRE, ELECTRICAL	2
5	PAFZZ	PAFZZ	PAFZZ	5940-01-476-8951	93742	98-19518-01	. . TERMINAL, QUICK DISCONNECT	2
6	XBFZZ	XBFZZ	XBFZZ	5970-01-471-3258	1JX75	B2 1/2 BLACK	. . INSULATION, SLEEVING	2
7	PAFZZ	PAFZZ	PAFZZ	5940-01-476-8981	93742	98-19518-02	. . TERMINAL, QUICK DISCONNECT	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0304 CONTACTOR ASSEMBLY

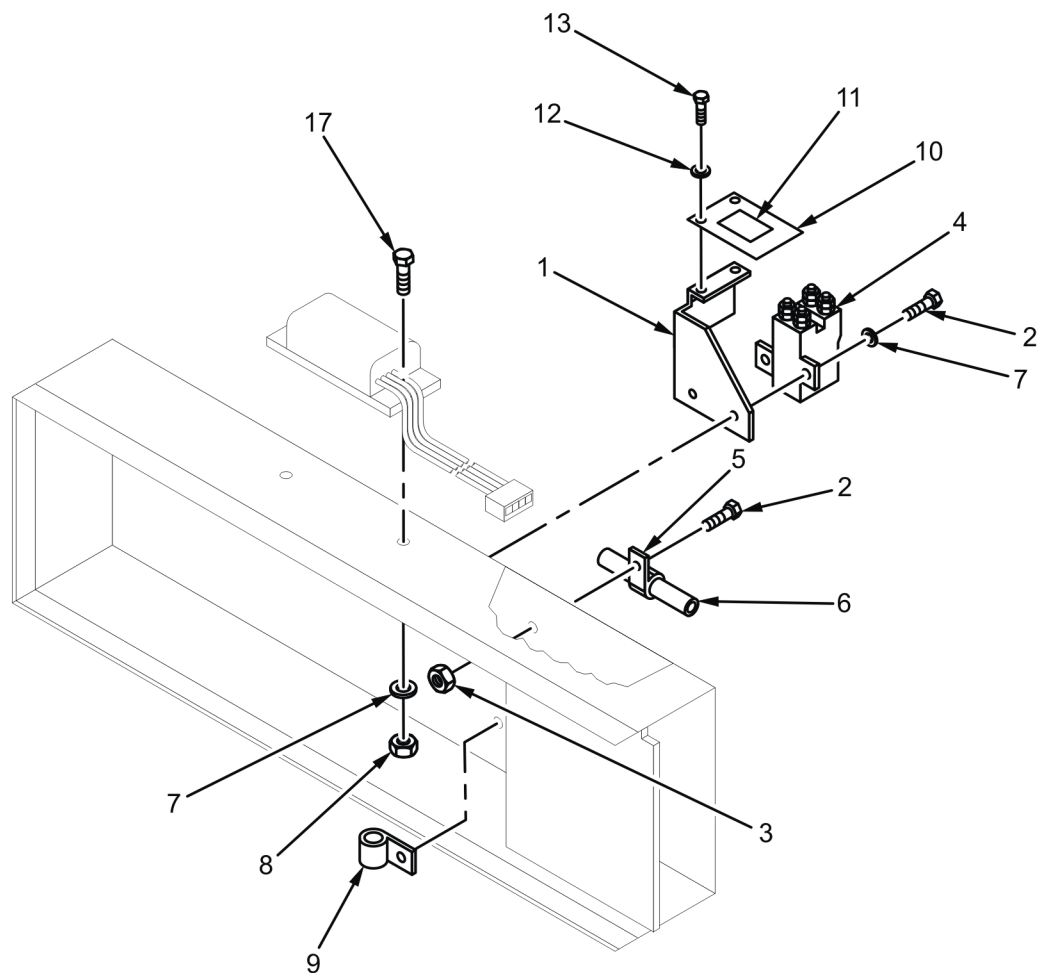


Figure 9. CONTACTOR ASSEMBLY (Sheet 1 of 2).

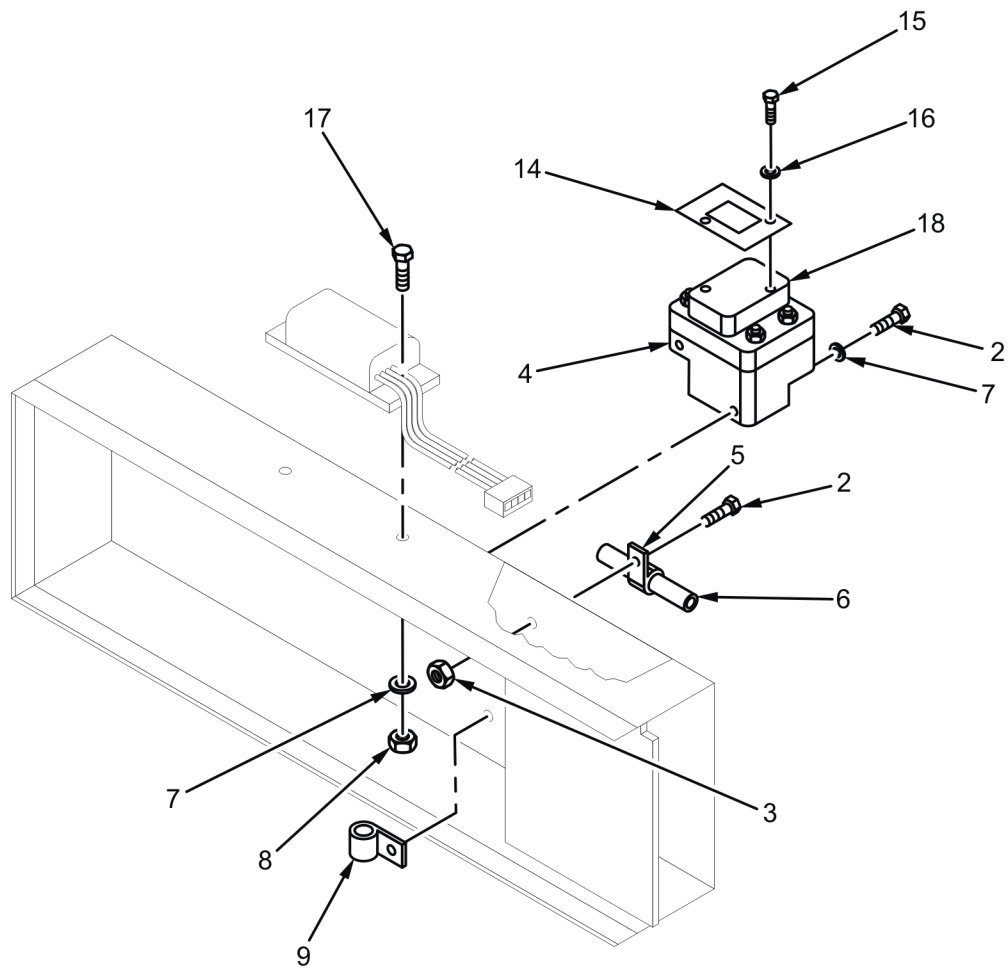


Figure 9. CONTACTOR ASSEMBLY (Sheet 2 of 2).

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a.	b.	c.					
	ARMY	AIR FORCE	USMC					
GROUP 0304 CONTACTOR ASSEMBLY FIGURE 9 CONTACTOR ASSEMBLY								
1	XBFZZ	XBOZZ	XBOZZ		30554	98-19719	. . BRACKET,MOUNTING	1
2	PAFZZ	PAOZZ	PAOZZ	5305-01-187-5878	78189	61-101041-90-0142B-0542B	. . SCREW,ASSEMBLED WASHER	3
3	PAFZZ	PAOZZ	PAOZZ	5310-01-477-1368	30554	88-20033-8	. . WASHER,FLAT	1
4	PAFZZ	PAOZZ	PAOZZ	6110-01-507-7938	01XD4	CT100D24C1S	. . CONTACTOR, MAGNETIC, 2 POLE	1
4	PAFZZ	PAOZZ	PAOZZ	6110-01-477-1175	1R7H6	JAD-5005	. . CONTACTOR, MAGNETIC 2 POLE	1
5	PAFZZ	PAOZZ	PAOZZ	5340-01-476-9004	22175	43LC6-12-SS-R	. . STRAP,WEBBING	1
6	PAFZZ	PAOZZ	PAOZZ	6150-01-477-1176	30554	98-19597	. . WIRING HARNESS 60/400 UOC: LQQ, 400 Hz	1
6	PAFZZ	PAOZZ	PAOZZ	6150-01-477-1177	30554	98-19592	. . WIRING HARNESS UOC: LQR, 60 Hz .	1
7	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER, FLAT #10 NOM STL CAD	4
8	PAFZZ	PAOZZ	PAOZZ	5310-00-208-9255	80205	MS21044C3	. . NUT,SELF-LOCKING,HEXAGON	2
9	PAFZZ	PAOZZ	PAOZZ	5340-01-477-0133	22175	JM54LC6SS8R	. . CLAMP,LOOP	1
10	PAFZZ	PAOZZ	PAOZZ	5999-01-502-6278	30554	98-19726	. . COVER,RELAY-SWITCH	1
11	XBFZZ	XBOZZ	XBOZZ		15563	98-19709-02	. . LABEL,CAUTION	1
12	PAFZZ	PAOZZ	PAOZZ	5310-00-983-8483	96906	MS27183-5	. . WASHER,FLAT	2
13	PAFZZ	PAOZZ	PAOZZ	5305-00-036-6968	97403	13214E3290-18	. . SCREW, ASSEMBLED WASHER	2
14	XBFZZ	XBOZZ	XBOZZ		01XD4	SGD00007A	. . COVER,PROTECTIVE	1
15	XBFZZ	XBOZZ	XBOZZ		01XD4	SCW0632-5	. . SCREW	2
16	XBFZZ	XBOZZ	XBFZZ		01XD4	WLK0006	. . WASHER,LOCK	2
17	PAFZZ	PAOZZ	PAOZZ	5305-01-378-7899	30554	88-20260-22	. . SCREW,CAP,HEXAGON HEAD	2
18	PRFFF	PRFFF	PRFFF	5930-00-422-4948	04426	11-504	. . SWITCH, SENSITIVE	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0305 FREQUENCY CONVERTER (A8)

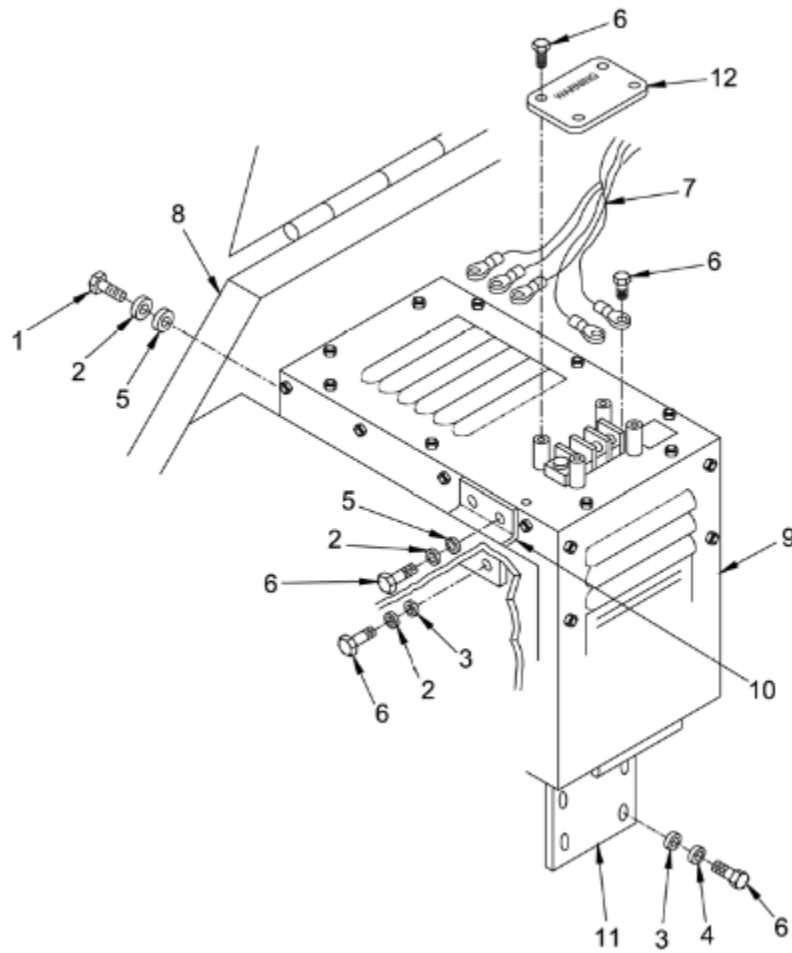


Figure 10. FREQUENCY CONVERTER (A8).

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
							GROUP 0305 FREQUENCY CON- VERTER (A8)	
							FIGURE 10 FREQUENCY CONVERTER (A8)	
1	PAFZZ	PAOZZ	PAOZZ	5305-01-056-1501	24617	274825	. . SCREW,CAP,HEXAGON	1
2	PAFZZ	PAOZZ	PAOZZ	5310-00-809-4058	96906	MS27183-10	. . WASHER,FLAT, CAD	3
3	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER, LOCK, #6, SPLIT, CADMIUM	2
4	PAFZZ	PAOZZ	PAOZZ	5310-00-014-5850	96906	MS27183-42	. . WASHER, FLAT, #10 .217 ID x .5 OD ...	1
5	PAFZZ	PAOZZ	PAOZZ	5310-00-543-2410	80205	MS35338-40	. . WASHER,LOCK	2
6	PAFZZ	PAOZZ	PAOZZ	5305-01-378-7899	30554	88-20260-22	. . SCREW,CAP,HEXAGON	15
7	PAFZZ	PAOZZ	PAOZZ	6150-01-476-9338	30554	98-19633	. . WIRING HARNESS, 60 Hz UOC: LQR .	1
7	PAFZZ	PAOZZ	PAOZZ	6150-01-477-1173	30554	98-19729	. . WIRING HARNESS, 400 Hz UOC: LQQ	1
8	XBFZZ	XBOZZ	XBOZZ		30554	98-19570	. . PANEL,LEFT SIDE	1
9	PAFDD	PAODD	PAODD	5895-01-477-0855	60177	29350	. . FREQUENCY CONVERTER, 60 Hz UOC: LQR	1
9	PAFDD	PAODD	PAODD	5895-01-477-0858	30554	29340	. . FREQUENCY CONVERTER, 400 Hz UOC: LQQ	1
10	XBFZZ	XBOZZ	XBOZZ		30554	98-19618	. . BRACKET,MOUNTING	1
11	XBFZZ	XBOZZ	XBOZZ		30554	98-19549	. . BRACKET,MOUNTING	1
12	XBFZZ	XBOZZ	XBOZZ	7690-01-531-3589	5Y407	5601856	. . WARNING PLATE	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0306 RELAYS, ELECTROMAGNETIC

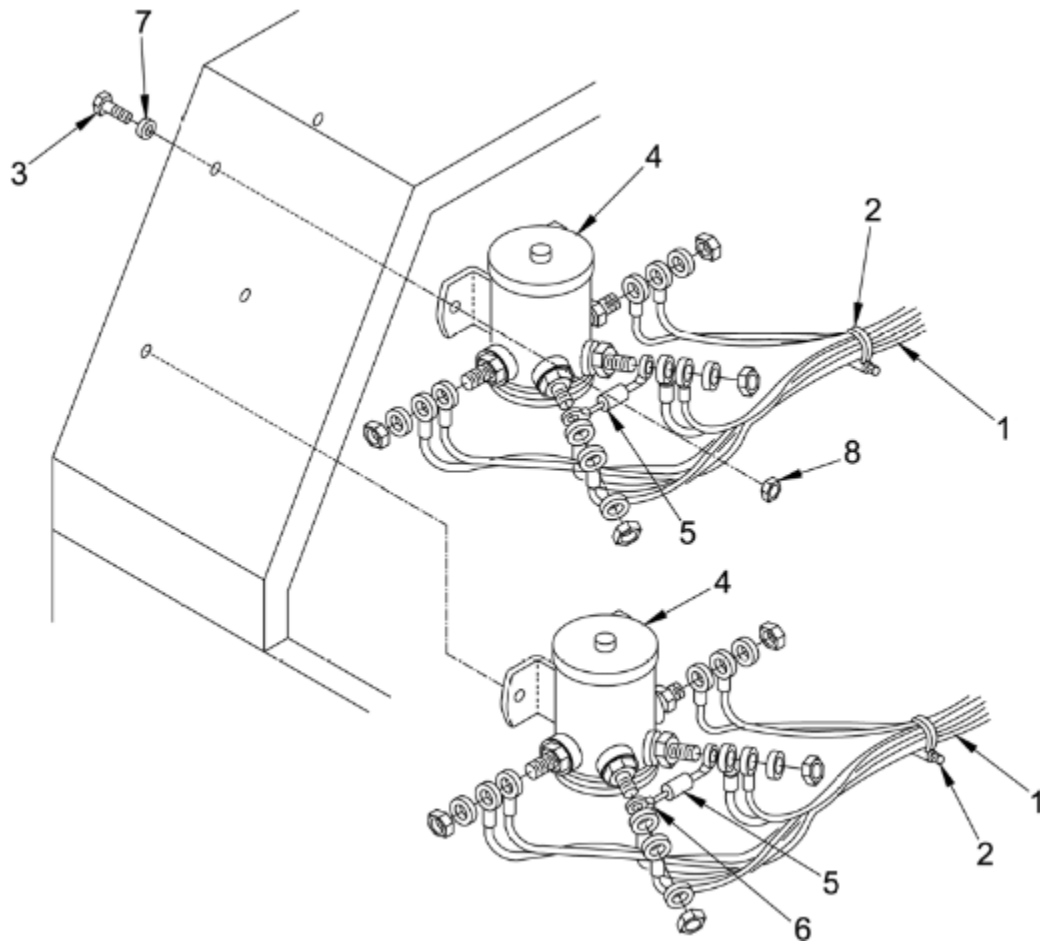


Figure 11. RELAYS, ELECTROMAGNETIC.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
							GROUP 0306 RELAYS, ELECTROMAG- NETIC	
							FIGURE 11 RELAYS, ELECTROMAG- NETIC	
1	PAFZZ	PAOZZ	PAOZZ	6150-01-477-1173	30554	98-19729	. . WIRING HARNESS UOC: LQR, 60 Hz .	1
1	PAFZZ	PAOZZ	PAOZZ	6150-01-476-9338	30554	98-19633	. . WIRING HARNESS UOC: LQQ, 400 Hz	1
2	PAFZZ	PAOZZ	PAOZZ	5975-00-111-3208	81343	MS3367-5-9	. . STRAP,TIEDOWN, ELECTRICAL	2
3	PAFZZ	PAOZZ	PAOZZ	5306-00-484-5730	1UVT5	307608	. . BOLT,MACHINE	1
4	PAFZZ	PAOZZ	PAOZZ	5945-00-855-7478	16764	1115615	. . RELAY,ELECTROMAGNET	2
5	PAFZZ	PAOZZ	PAOZZ	5961-01-172-5982	81349	JANTX1N6056A	. . SEMICONDUCTOR DEVICE DIODE	2
6	PAFZZ	PAOZZ	PAOZZ	5940-01-369-2270	98410	AA-8715-10	. . TERMINAL,LUG	4
7	PAFZZ	PAOZZ	PAOZZ	5310-00-809-4058	96906	MS27183-10	. . WASHER,FLAT	1
8	PAFZZ	PAOZZ	PAOZZ	5310-00-685-2973	94135	12Z2007-260	. . NUT,SELF-LOCKING,HEX	1
							END OF FIGURE	

OPERATOR AND FIELD MAINTENANCE
GROUP 04 CONTROL BOX ASSEMBLY

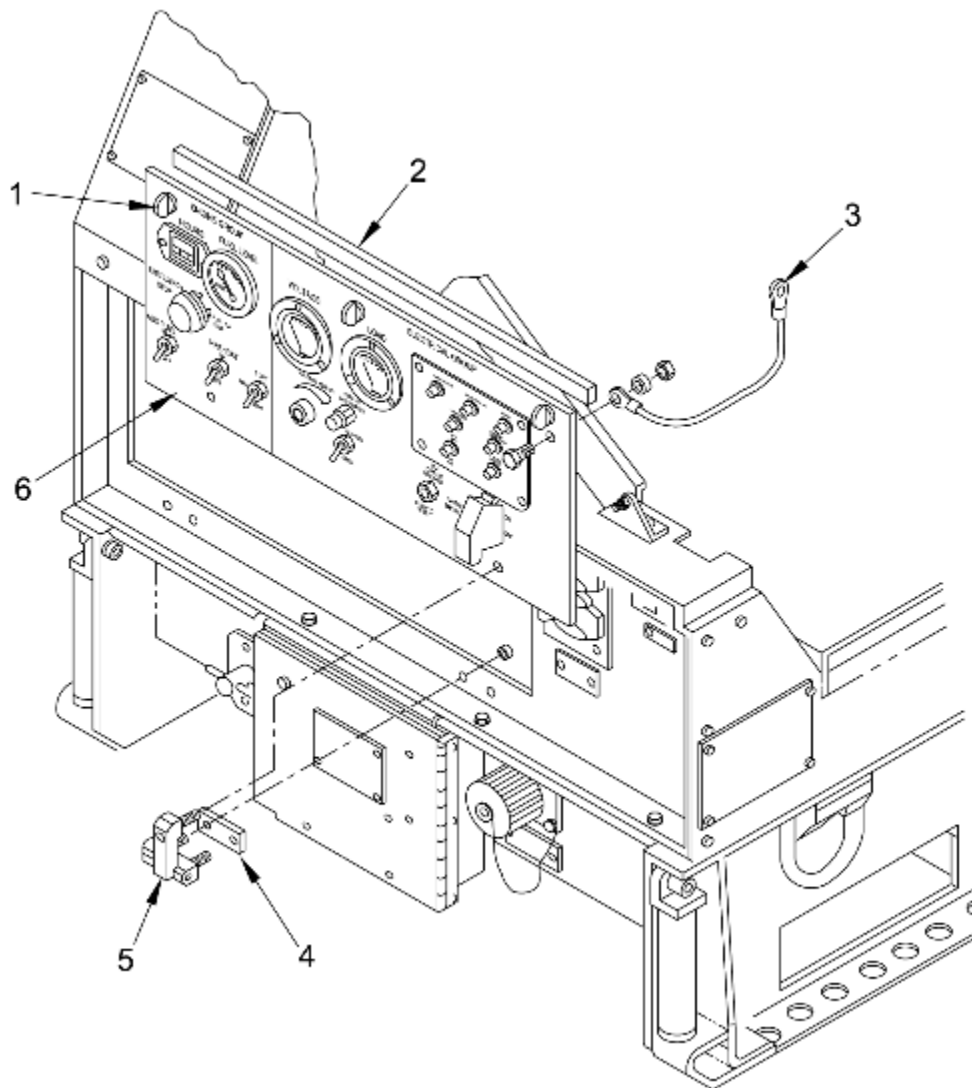


Figure 12. CONTROL BOX ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 04 CONTROL BOX ASSEMBLY								
FIGURE 12 CONTROL BOX ASSEMBLY								
1	PAFZZ	PAOZZ	PAOZZ	5325-01-301-7903	94222	85-35-309-56	. . RECEPTACLE,TURNLOCK	3
2	PAFZZ	PAOZZ	PAOZZ	5330-01-477-9623	59502	4119NX0108E05	. . GASKET, STRIP	3
3	PAFZZ	PAOZZ	PAOZZ	4020-01-476-9072	30554	98-19724	. . FIBER ROPE ASSEMBLY	1
4	XBFZZ	XBOZZ	XBOZZ		30554	98-19583	. . SPACER	2
5	PAFZZ	PAOZZ	PAOZZ	5340-01-476-9074	0E8J0	1055-U3	. . HINGE, BUTT	2
6	XBFFF	XBOOO	XBOOO		30554	98-19509	. . CONTROL PANEL ASSEMBLY	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0401 CONTROL BOX TERMINALS

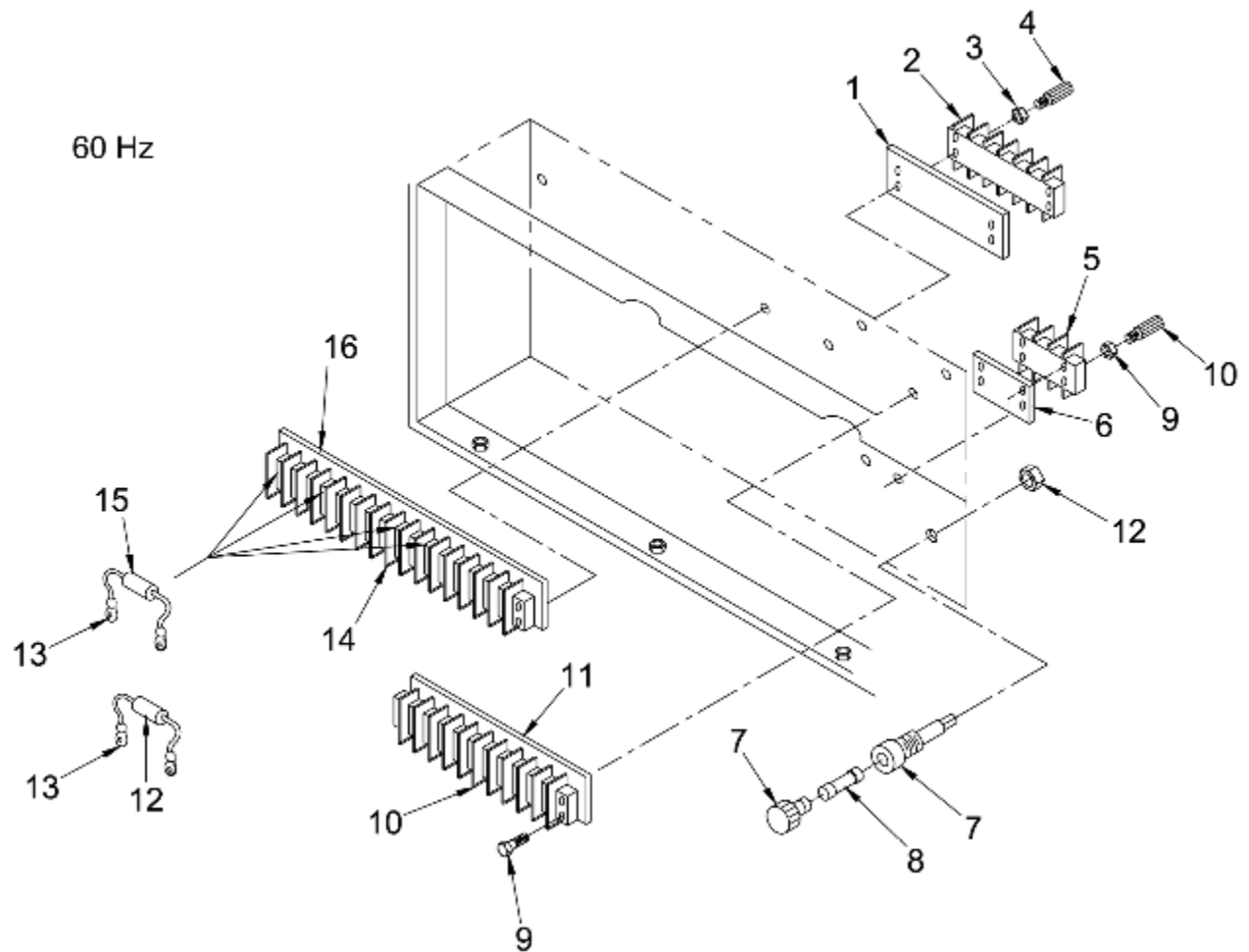


Figure 13. CONTROL BOX TERMINALS (Sheet 1 of 2).

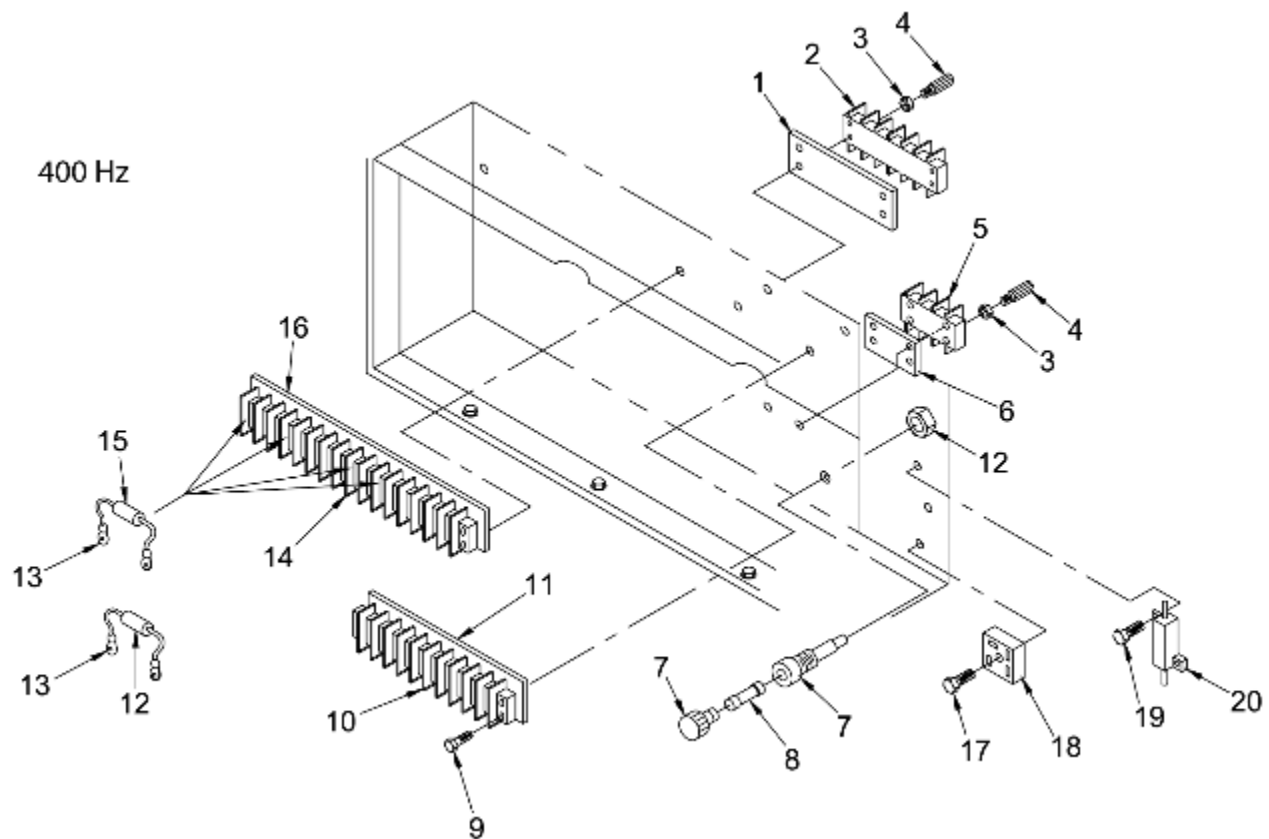


Figure 13. CONTROL BOX TERMINALS (Sheet 2 of 2).

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0401 CONTROL BOX TERMINALS								
FIGURE 13 CONTROL BOX TERMINALS								
1	XBFZZ	XBOZZ	XBOZZ		9R803	3300-9-XP-74	. . . PLATE, DESIGNATION	1
2	PAFZZ	PAOZZ	PAOZZ	5940-01-476-9191	9R803	3300-9	. . . TERMINAL BOARD	1
3	PAFZZ	PAOZZ	PAOZZ	5310-00-045-3296	80205	MS35338-43	. . . WASHER, LOCK #10, SPLIT, CAD- MIUM	4
4	PAFZZ	PAOZZ	PAOZZ	5340-01-476-8683	30554	98-19728	. . . STANDOFF, THREADED	4
5	PAFZZ	PAOZZ	PAOZZ	5940-01-477-1254	9R803	3300-3	. . . TERMINAL BOARD	1
6	XBFZZ	XBOZZ	XBOZZ		9R803	3300-3-XP-74	. . . PLATE, DESIGNATION	1
7	PAFZZ	PAOZZ	PAOZZ	5920-01-476-9734	75915	342028, 905-023, 901 -124	. . . FUSEHOLDER, EXTRACTOR	1
8	PAFZZ	PAOZZ	PAOZZ	5920-00-131-9915	81349	F02A32V20A	. . . FUSE, CARTRIDGE	1
9	PAFZZ	PAOZZ	PAOZZ	5305-00-038-3103	30554	69-662-35	. . . SCREW, ASSEMBLED WASHER	4
10	PAFZZ	PAOZZ	PAOZZ	5940-01-470-2470	9R803	3300-2	. . . TERMINAL BOARD	1
11	XBFZZ	XBOZZ	XBOZZ	5940-01-470-3031	9R803	3300-10-XP-74	. . . MARKER STRIP,TERMINAL BOARD ..	1
12	PAFZZ	PAOZZ	PAOZZ	5940-01-057-3305	81349	JANTX1N6072A	. . . SEMICONDUCTOR DEVICE	1
13	PAFZZ	PAOZZ	PAOZZ	5940-01-425-2020	06383	PN18-6LF-C	. . . TERMINAL, LUG	2
14	PAFZZ	PAOZZ	PAOZZ	5940-01-476-9186	9R803	3300-16	. . . TERMINAL BOARD	1
15	PAFZZ	PAOZZ	PAOZZ	5961-00-484-8041	1MQ07	1N5404	. . . SEMICONDUCTOR DEVICE	3
16	XBFZZ	XBOZZ	XBOZZ		9R803	3300-16-XP-74	. . . PLATE,DESIGNATION	1
17	PAFZZ	PAOZZ	PAOZZ	5305-01-187-5878	78189	61-101041-90-0142B- 0542B	. . . SCREW,ASSEMBLED WASHER	3
18	PAFZZ	PAOZZ	PAOZZ	5961-01-421-3024	14936	GBPC1204	. . . RECTIFIER, SEMICONDUCTOR DEVICE	1
19	PAFZZ	PAOZZ	PAOZZ	5305-00-224-1092	79343	04306-0153	. . . SCREW,ASSEMBLED WASHER	2
20	PAFZZ	PAOZZ	PAOZZ	5905-00-468-5869	81349	RER70F2491R	. . . RESISTOR,FIXED	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE

GROUP 0402 RECEPTACLE, FILTERS, TERMINALS, AND VOLTAGE RESISTORS

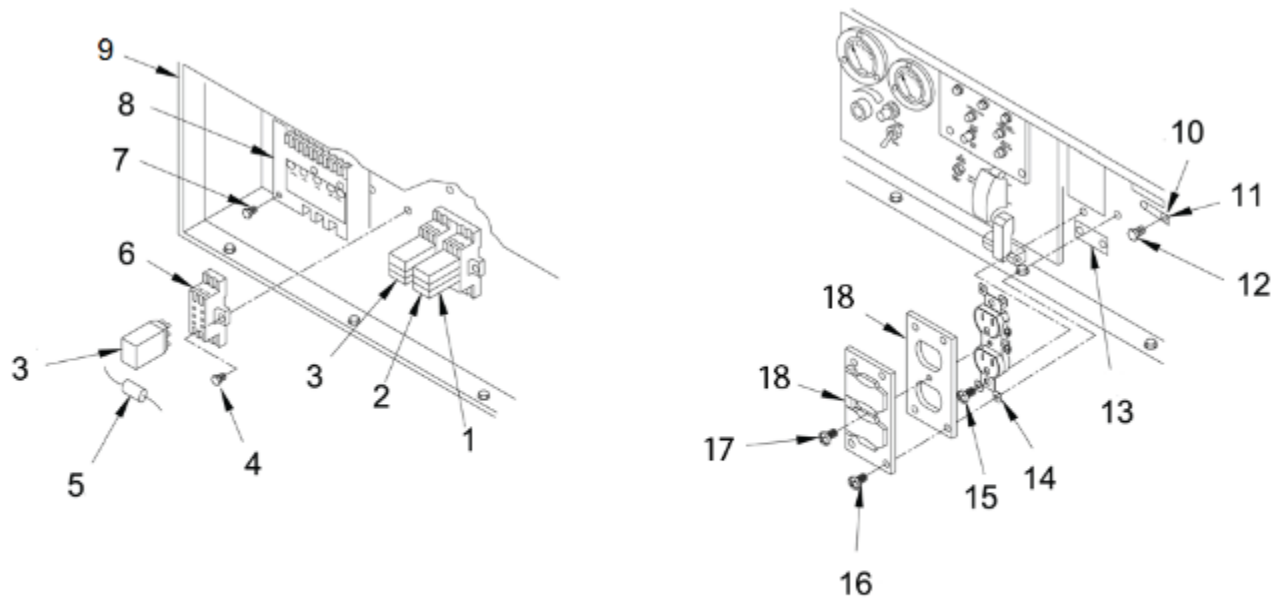


Figure 14. RECEPTACLE, FILTERS, TERMINALS, AND VOLTAGE RESISTORS.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
							GROUP 0402 RECEPTACLE, FILTERS, TERMINALS, AND VOLTAGE RESIS- TORS FIGURE 14 RECEPTACLE, FILTERS, TERMINALS, AND VOLTAGE RESIS- TORS	
1	PAFZZ	PAOZZ	PAOZZ	5360-01-260-0317	60886	SY4S-02F1	.. SPRING,HELICAL,EXT	3
2	PAFZZ	PAOZZ	PAOZZ	5945-01-509-9898	60886	RH2B-ULAC110-120V	.. RELAY,ELECTROMAGNET, 120VAC	1
3	PAFZZ	PAFZZ	PAFZZ	5945-01-461-2084	60886	RH2B-ULDC24V	.. RELAY,ELECTROMAGNET, 24VDC	2
4	PAFZZ	PAOZZ	PAOZZ	5305-01-201-8979	30554	69-662-24	.. SCREW,ASSEMBLED WASHER	6
5	PAFZZ	PAOZZ	PAOZZ	5961-01-172-5982	81349	JANTX1N6056A	.. SEMICONDUCTOR DEVICE	1
6	PAFZZ	PAOZZ	PAOZZ	5935-01-477-9883	042U1	SH2B-05	.. SOCKET,PLUG-IN ELEC	4
7	PAFZZ	PAOZZ	PAOZZ	5305-01-247-6829	78189	61-081441-40-C1428-0542B	.. SCREW,ASSEMBLED WASHER	2
8	PAFZZ	PAOZZ	PAOZZ	2990-01-477-1371	0BXW5	SLC100	.. CONTROL UNIT,GOVERN	1
9	XBFZZ	XBOZZ	XBOZZ		30554	98-19710	.. CONTROL BOX,WELDMEN UOC:LQQ	1
10	PAFZZ	PAOZZ	PAOZZ	5925-01-478-2040	60177	29410	.. INTERRUPTER, GROUND FAULT	1
11	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-08	.. PLATE,IDENTIFICATION	1
12	PAFZZ	PAOZZ	PAOZZ	5320-00-932-1972	81349	M24243/6-A402H	.. RIVET,BLIND	4
13	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-04	.. PLATE,IDENTIFICATIO	1
14	PAFZZ	PAOZZ	PAOZZ	5935-01-367-7814	74545	CR15	.. CONNECTOR BODY,RECE	1
15	PAFZZ	PAOZZ	PAOZZ	5305-00-036-6972	78189	61-060841-40-0142B-0542B	.. SCREW,ASSEMBLED WAS	2
16	PAFZZ	PAOZZ	PAOZZ	5305-00-036-6976	97403	13214E3290-21	.. SCREW,ASSEMBLED WAS	4
17	PAFZZ	PAOZZ	PAOZZ	5305-01-467-1561	30554	88-22791-2	.. SCREW,MACHINE	1
18	PAFZZ	PAOZZ	PAOZZ	5975-00-879-7234	74545	HBL5206WO	.. PLATE,WALL,ELECTRIC COOLING SYSTEM/COOLING FAN ASSEMBLY	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0403 CONTROL PANEL, METERS, GAUGES, AND SWITCHES

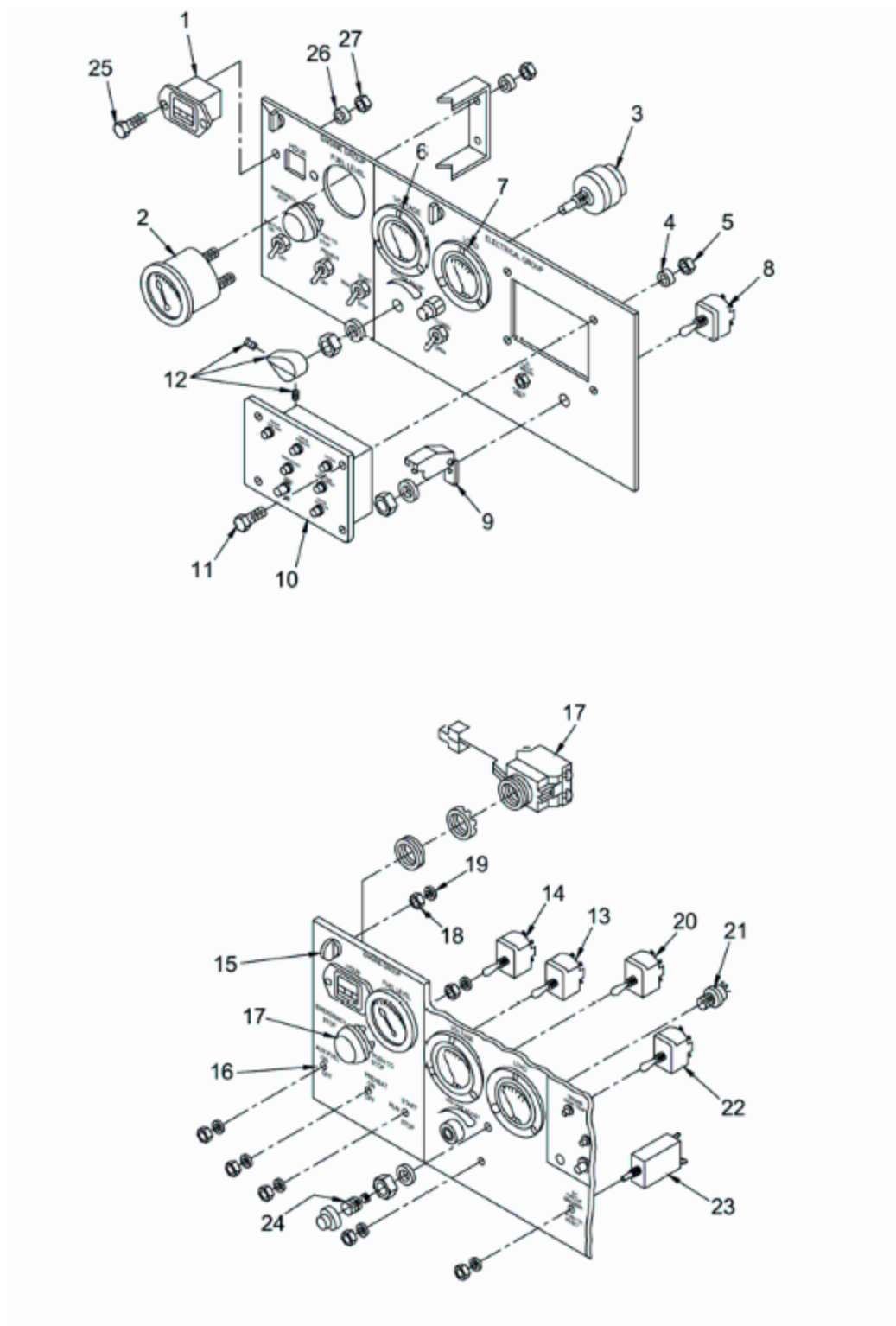


Figure 15. CONTROL PANEL, METERS, GAUGES, AND SWITCHES.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
							GROUP 0403 CONTROL PANEL, METERS, GAUGES, AND SWITCHES	
							FIGURE 15 CONTROL PANEL, METERS, GAUGES, AND SWITCHES	
1	PAFZZ	PAOZZ	PAOZZ	6645-01-458-7278	74400	85311	. . METER, TIME TOTALIZING	1
2	PAFZZ	PAOZZ	PAOZZ	6680-00-052-3544	96906	30554	. . INDICATOR, LIQUID QUANTITY	1
3	PAFZZ	PAOZZ	PAOZZ	5905-00-539-2573	81349	RV4SAYSD502A	. . RESISTOR, VARIABLE	1
4	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER, FLAT	4
5	PAFZZ	PAOZZ	PAOZZ	5310-00-208-9255	80205	MS21044C3	. . NUT, SELF-LOCKING, HEXAGON	4
6	PAFZZ	PAOZZ	PAOZZ	6625-01-477-0732	77221	628-20978	. . VOLTMETER	1
7	PAFZZ	PAOZZ	PAOZZ	6625-01-515-2404	11707	26.6002	. . WATTMETER	1
8	PAFZZ	PAOZZ	PAOZZ	5930-01-368-2891	81640	8906K4533	. . SWITCH, TOGGLE	1
9	XAFZZ	XAOZZ	XAOZZ		30554	88-20549-1	. . GUARD, SWITCH	1
10	PAFZZ	PAOZZ	PAOZZ	6625-01-477-0634	60177	29390	. . INDICATOR, FAULT LOC	1
11	PAFZZ	PAOZZ	PAOZZ	5305-00-989-7435	80205	MS35207-264	. . SCREW, MACHINE	4
12	PAFZZ	PAOZZ	PAOZZ	5355-00-559-8943	80205	MS91528-2K2B	. . KNOB	1
13	PAFZZ	PAOZZ	PAOZZ	5930-00-683-1626	96906	MS24523-30	. . SWITCH, TOGGLE	1
14	PAFZZ	PAOZZ	PAOZZ	5930-00-683-1628	96906	MS24523-22	. . SWITCH, TOGGLE	1
15	PAFZZ	PAOZZ	PAOZZ	5325-01-320-8193	94222	85-12-500-16	. . STUD, TURNLOCK FASTE	2
16	XBFZZ	XBOZZ	XBOZZ		30554	98-19553	. . PANEL, CONTROL BOX	1
17	PAFZZ	PAOZZ	PAOZZ	5930-01-478-0101	60886	HW1B-Y2C02-R	. . SWITCH, PUSH-PULL	1
18	PAFZZ	PAOZZ	PAOZZ	5310-01-365-4381	94222	85-46-103-39	. . WASHER, FLAT	2
19	PAFZZ	PAOZZ	PAOZZ	5310-00-822-8525	18876	PMS25086-001-01	. . WASHER, SPLIT	2
20	PAFZZ	PAOZZ	PAOZZ	5930-00-906-3477	96906	MS27407-2	. . SWITCH, TOGGLE	1
21	PAFZZ	PAOZZ	PAOZZ	6210-00-583-9349	96906	MS25041-5	. . LIGHT, INDICATOR	1
22	PAFZZ	PAOZZ	PAOZZ	5930-01-368-2893	81640	8906K4519	. . SWITCH, TOGGLE	1
23	PAFZA	PAOZA	PAFZA	5925-00-089-3031	77342	W23X1A1G7.5	. . CIRCUIT BREAKER	1
24	PAFZZ	PAOZZ	PAOZZ	6210-01-620-1824	30554	98-19763	. . LIGHT, LED INDICATOR	1
25	PAFZZ	PAOZZ	PAOZZ	5305-01-335-7410	96906	MS51492-02	. . SCREW, MACHINE	2
26	PAFZZ	PAOZZ	PAOZZ	5310-01-531-5950	30554	88-20033-6A	. . WASHER, FLAT	2

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM	AIR						DESCRIPTION AND	
NO.	ARMY	FORCE	USMC	NSN	CAGEC	PART NUMBER	USABLE ON CODE (UOC)	QTY
27	PAFZZ	PAOZZ	PAOZZ	5310-01-531-7609	30554	95-8125-2	. . NUT,SELF-LOCKING	2
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0501 COOLING FAN ASSEMBLY

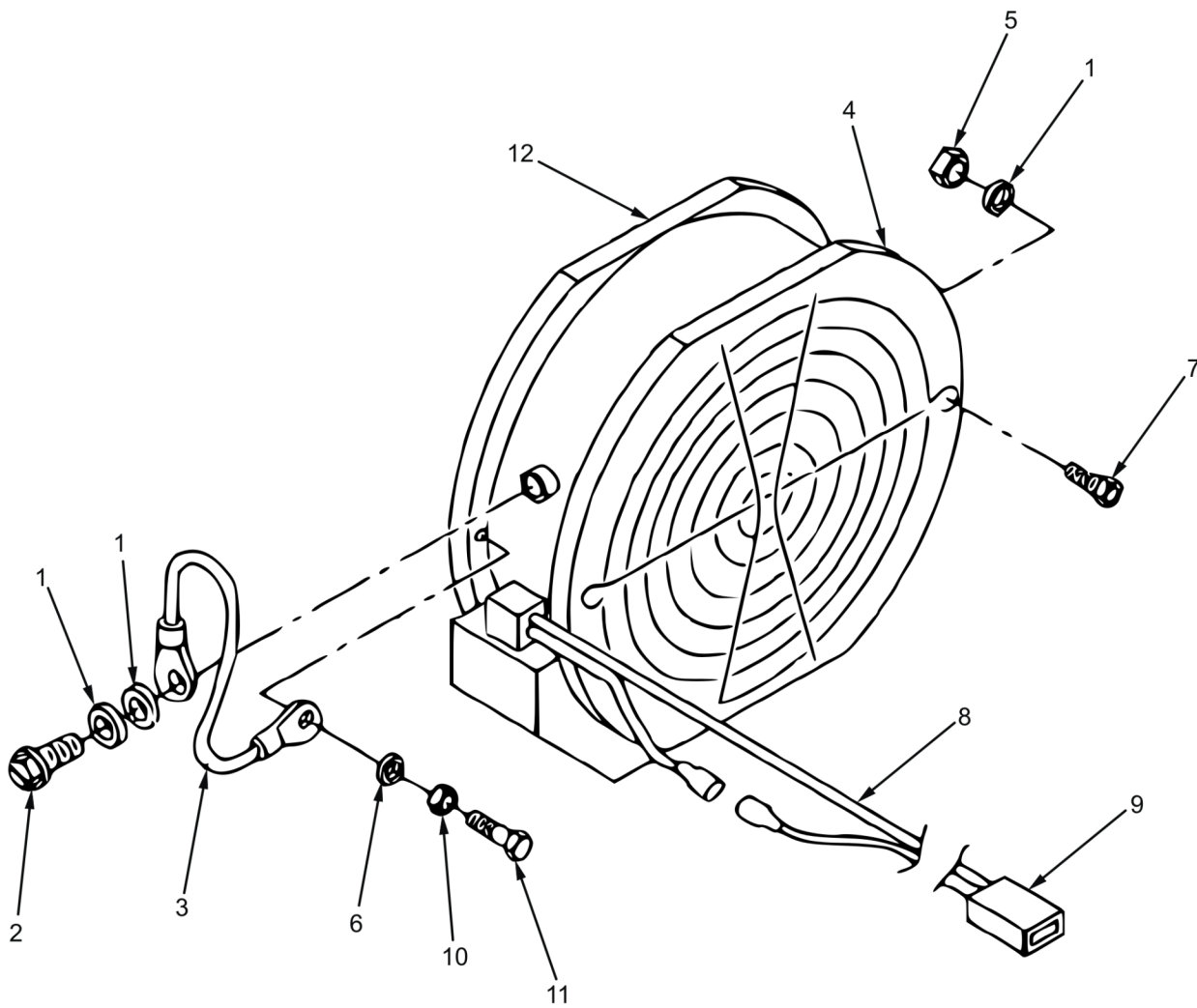


Figure 16. COOLING FAN ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
							GROUP 0501 COOLING FAN ASSEMBLY	
							FIGURE 16 COOLING FAN ASSEMBLY	
1	PAFZZ	PAOZZ	PAOZZ	5310-00-014-5850	96906	MS27183-42	. . WASHER,FLAT	3
2	PAFZZ	PAOZZ	PAOZZ	5305-01-470-6197	D8286	SEMS DIN7985-M4X1 0-A2-70-H	. . SCREW, PAN HD, EXT. TOOTH	1
3	PAFZZ	PAOZZ	PAOZZ	5920-01-477-0598	30554	98-19734	. . FUSE LINK, THERMAL	2
4	PAFZZ	PAOZZ	PAOZZ	4140-01-476-9063	5Y921	559262	. . GUARD, FAN IMPELLER	2
5	PAFZZ	PAOZZ	PAOZZ	5310-00-982-6814	80205	MS21044C08	. . NUT, SELF-LOCKING	1
6	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8544	96906	MS27183-7	. . WASHER,FLAT	1
7	PAFZZ	PAOZZ	PAOZZ	5306-01-156-7663	19207	12325869	. . BOLT, MACHINE	4
8	PAFZZ	PAOZZ	PAOZZ	6150-01-478-1124	93742	98-19714-01	. . CABLE ASSEMBLY, POWER	1
9	PAFZZ	PAOZZ	PAOZZ	6150-01-476-9315	30554	98-19714-02	. . CABLE ASSEMBLY, POWER	1
10	PAFZZ	PAOZZ	PAOZZ	5310-00-407-9566	80205	MS35338-45	. . WASHER, LOCK	1
11	PAFZZ	PAOZZ	PAOZZ	3305-01-470-1425	30554	88-20260-11	. . SCREW, MACHINE	1
12	PAFZZ	PAOZZ	PAOZZ	4140-01-503-3160	1VEL5	OA172SAP-11-1TB-X C	. . FAN TUBEAXIAL UOC: LQR	1
12	PAFZZ	PAOZZ	PAOZZ	4140-01-476-9068	30554	98-19512-02	. . FAN VENTILATING, 400 Hz UOC: LQQ	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0502 HI/LO TEMPERATURE SWITCHES

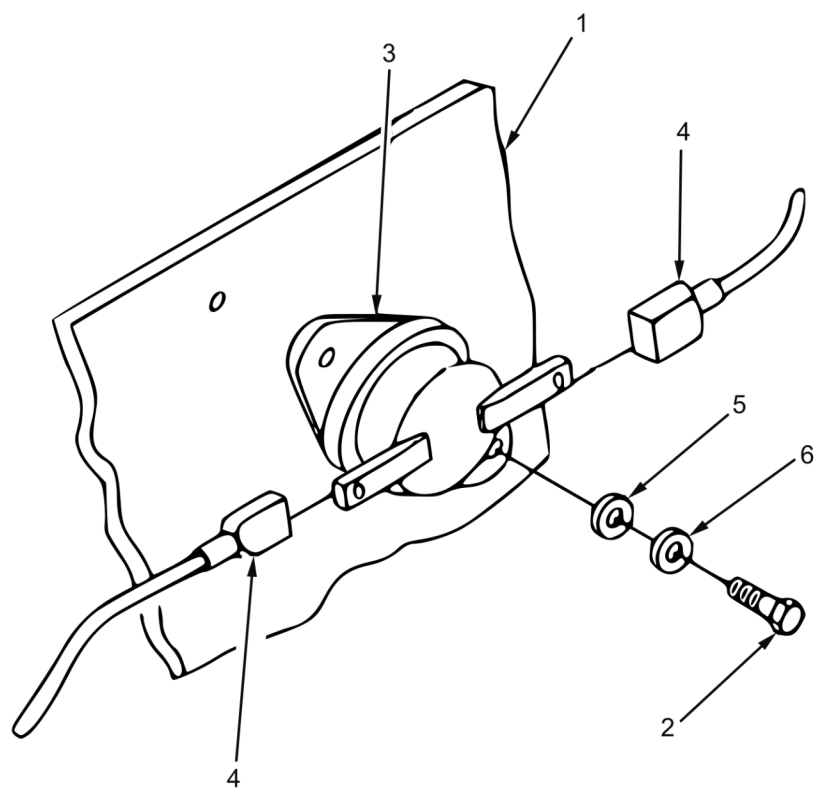


Figure 17. HI/LO TEMPERATURE SWITCHES.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
							GROUP 0502 HI/LO TEMPERATURE SWITCHES	
							FIGURE 17 HI/LO TEMPERATURE SWITCHES	
1	PAFZZ	PAOZZ	PAOZZ	5930-01-477-0617	59270	CA-110	. . SWITCH,THERMOSTATIC	1
2	PAFZZ	PAOZZ	PAOZZ	5305-00-889-2997	80205	MS35206-215	. . SCREW,MACHINE	1
3	PAFZZ	PAOZZ	PAOZZ	5930-01-436-4959	59270	CA-85	. . SWITCH,THERMOSTATIC	1
4	PAFFF	PAOOO	PAOOO	6150-01-476-9338	30554	98-19633	. . WIRING HARNESS, 60 Hz UOC: LQR .	1
4	PAFFF	PAOFF	PAOFF	6150-01-477-1173	30554	98-19729	. . WIRING HARNESS, 400 Hz UOC: LQQ	1
5	PAFZZ	PAOZZ	PAOZZ	5310-00-582-5965	06845	HK799G16M	. . WASHER, LOCK, #1/4, SPLIT CAD- MIUM	4
6	PAFZZ	PAOZZ	PAOZZ	5310-00-951-4679	96906	MS27183-3	. . WASHER,FLAT	4
							END OF FIGURE	

OPERATOR AND FIELD MAINTENANCE
GROUP 0601 FUEL TANK STRAINER ASSEMBLY

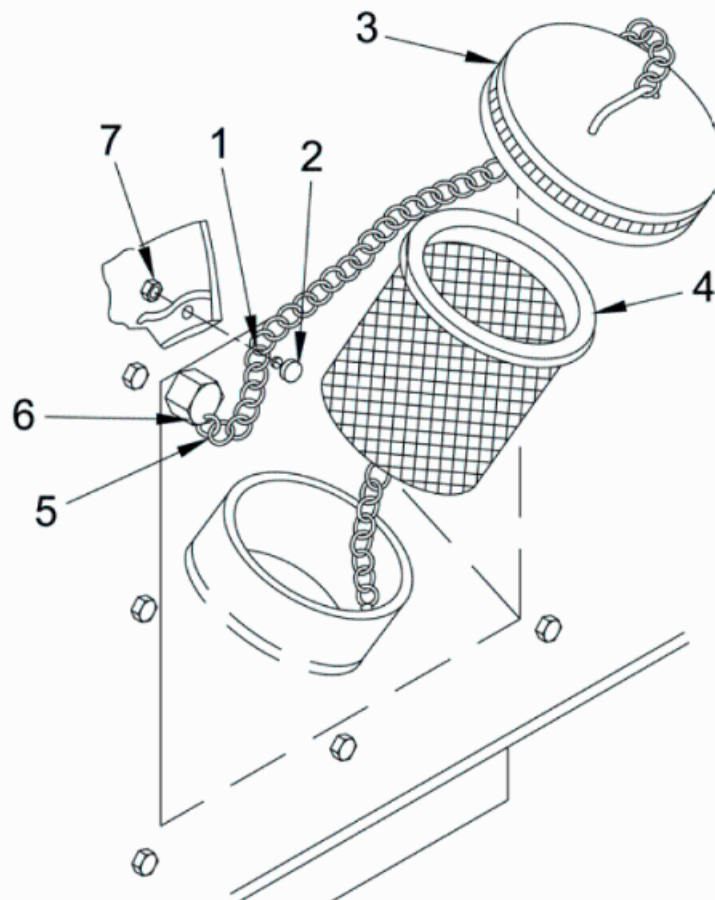


Figure 18. FUEL TANK STRAINER ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
							GROUP 0601 FUEL TANK STRAINER ASSEMBLY	
							FIGURE 18 FUEL TANK STRAINER ASSEMBLY	
1	PAFZZ	PAFZZ	PAFZZ	5310-00-014-5850	96906	MS27183-42	. . WASHER,FLAT	1
2	PAFZZ	PAFZZ	PAFZZ	5305-01-378-7899	30554	88-20260-22	. . SCREW,CAP,HEXAGON	1
3	PAFZZ	PAFZZ	PAFZZ	5342-01-198-7569	30554	98-19516	. . CAP,FILLER OPENING	1
4	PAFZZ	PAFZZ	PAFZZ	4730-01-476-9855	30554	98-19515	. . STRAINER ELEMENT	1
5	XBFZZ	PAFZZ	PAFZZ		81348	SFSIZE1	. . CHAIN, SASH	1
6	PAFZZ	PAFZZ	PAFZZ	4030-00-270-5436	96906	MS87006-3	. . HOOK,CHAIN,S	1
7	PAFZZ	PAFZZ	PAFZZ	5310-00-982-6814	80205	MS21044C08	. . NUT,SELF-LOCKING	4
							END OF FIGURE	

OPERATOR AND FIELD MAINTENANCE
GROUP 0602 FUEL TANK

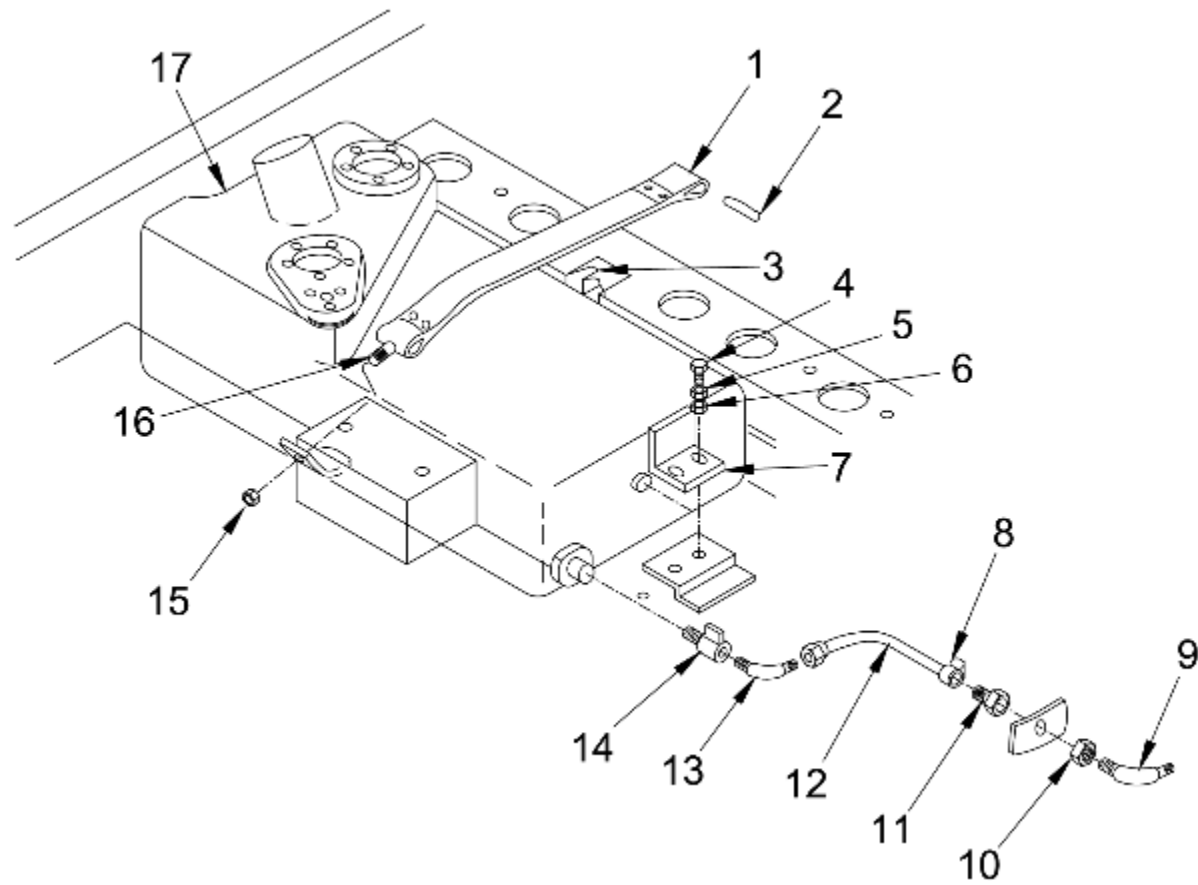


Figure 19. FUEL TANK.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0602 FUEL TANK								
FIGURE 19 FUEL TANK								
1	PAFZZ	PAFZZ	PAFZZ	5340-01-476-9144	30554	98-19613	. . STRAP,RETAINING	1
2	PAFZZ	PAFZZ	PAFZZ	5315-01-476-9086	30554	98-19703	. . PIN,STRAIGHT,HEADLE	1
3	PAFZZ	PAFZZ	PAFZZ	5340-01-476-9147	30554	98-19702	. . CLIP,ROD RETAINER	1
4	PAFZZ	PAOZZ	PAOZZ	5306-00-484-5730	1UVT5	307608	. . BOLT,MACHINE	2
5	PAFZZ	PAOZZ	PAOZZ	5310-00-543-2410	80205	MS35338-40	. . WASHER,LOCK	2
6	PAFZZ	PAOZZ	PAOZZ	5310-00-809-4058	96906	MS27183-10	. . WASHER,FLAT	2
7	XBFZZ	XBFZZ	XBFZZ		30554	98-19611	. . ANGLE,FUEL TANK STO	1
8	PAFZZ	PAFZZ	PAFZZ	4730-01-476-9775	81343	SAE J514 5-5 070701 C	. . ELBOW,HOSE	1
9	PAFZZ	PAOZZ	PAOZZ	4730-01-470-1626	30554	88-20561-1	. . CLAMP,HOSE	1
10	PAFZZ	PAFZZ	PAFZZ	4730-01-020-5607	96906	MS51860-54	. . LOCKNUT,TUBE FITTING	1
11	PAFZZ	PAOZZ	PAOZZ	4730-00-073-2151	01276	4797-5-4B	. . ADAPTER,STRAIGHT	1
12	MFFZZ	MOOZZ	MOOZZ	4720-01-470-3929	98441	208-4	. . HOSE, NONMETALLIC MAKE FROM P/N 208-4 (98441), 9.5 INCHES	1
13	PAFZZ	PAFZZ	PAFZZ	4730-01-476-9101	81343	4-4-430260C	. . ELBOW,HOSE	1
14	PAFZZ	PAFZZ	PAFZZ	4820-01-477-2791	93061	MV608-4	. . VALVE, BALL	1
15	PAFZZ	PAOZZ	PAOZZ	5310-00-997-1888	80205	MS35649-2252	. . NUT,PLAIN, HEXAGON	1
16	PAFZZ	PAFZZ	PAFZZ	5305-00-984-6218	96906	MS35206-271	. . SCREW, MACHINE	1
17	PAFZZ	PAFZZ	PAFZZ	2910-01-557-2674	30554	98-19557	. . TANK,FUEL,ENGINE	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0603 FUEL-LEVEL ASSEMBLY

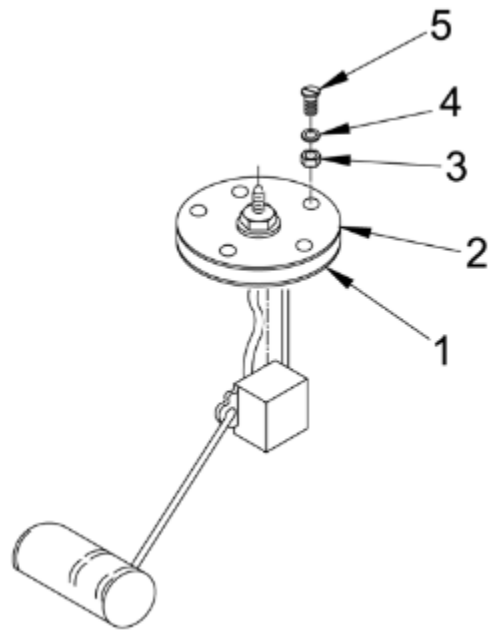


Figure 20. FUEL-LEVEL ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
a.		b.		c.				
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 0603 FUEL-LEVEL ASSEMBLY								
FIGURE 20 FUEL-LEVEL ASSEMBLY								
1	PAFZZ	PAOZZ	PAOZZ	5330-01-366-2836	30554	88-20286	. . GASKET	2
2	PAFZZ	PAOZZ	PAOZZ	6680-01-476-9362	09527	LS4082	. . TRANSMITTER,LIQUID	1
3	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER,FLAT	1
4	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER,LOCK	1
5	PAFZZ	PAOZZ	PAOZZ	5305-00-984-6210	05047	ASME B18.6.3	. . SCREW,MACHINE	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0604 FUEL-LEVEL SWITCH

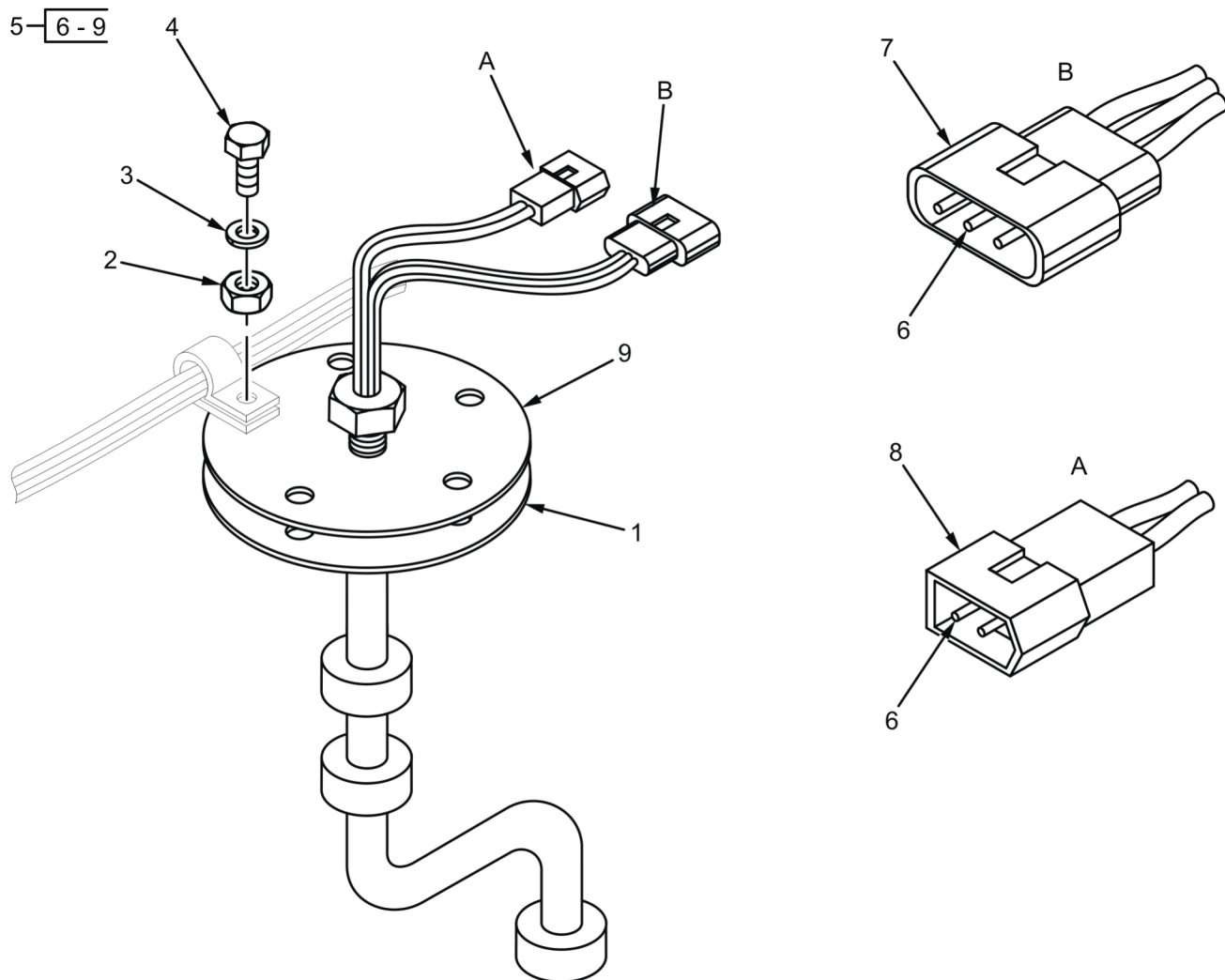


Figure 21. FUEL-LEVEL SWITCH.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a.	b.	c.					
	ARMY	AIR FORCE	USMC					
GROUP 0604 FUEL-LEVEL SWITCH								
1	PAFZZ	PAOZZ	PAOZZ	5330-01-476-9140	30554	98-19610	. . GASKET	2
2	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER,FLAT	1
3	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER,LOCK	1
4	PAFZZ	PAOZZ	PAOZZ	5305-00-984-6210	80205	MS35206-263	. . SCREW,MACHINE	1
5	PAFZZ	PAFZZ	PAFZZ	2910-01-476-9779	30554	98-19722	. . SWITCH,LIQUID LEVEL	1
6	XBFZZ	XBOZZ	XBOZZ		30554	88-20476	. . CONTACT,ELECTRICAL	2
7	PAFZZ	PAFZZ	PAFZZ	5935-01-053-1955	97403	13229E4181-1	. . CONNECTOR BODY,PLUG	1
8	PAFZZ	PAOZZ	PAOZZ	5935-00-482-7721	27264	03-09-2022	. . CONNECTOR,PLUG,ELEC UOC:LQR .	1
9	XBFZZ	XBOZZ	XBOZZ		30554	98-19519	. . CONTACT, ELECTRICAL	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0605 FUEL TANK PICKUP TUBE

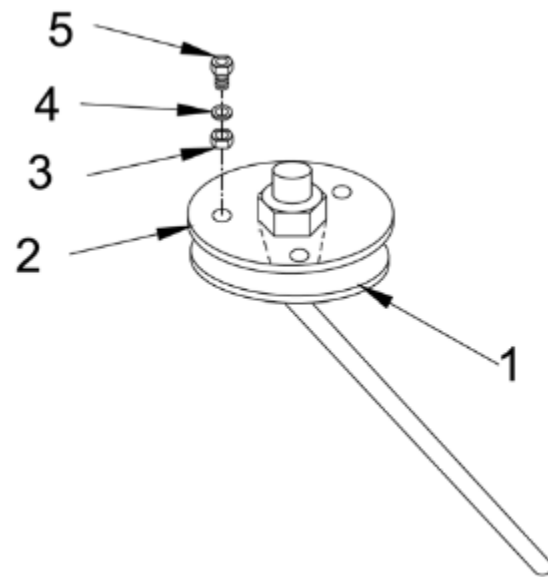


Figure 22. FUEL TANK PICKUP TUBE.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
							GROUP 0605 FUEL TANK PICKUP TUBE	
							FIGURE 22 FUEL TANK PICKUP TUBE	
1	PAFZZ	PAOZZ	PAOZZ	5330-01-476-9140	30554	98-19610	. . GASKET	1
2	PAFZZ	PAOZZ	PAOZZ	4710-01-478-3637	30554	98-19609	. . TUBE ASSEMBLY,METAL	1
3	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER,LOCK	3
4	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER,FLAT	3
5	PAFZZ	PAOZZ	PAOZZ	5305-00-984-6210	80205	MS35206-263	. . SCREW,MACHINE	3
							END OF FIGURE	

OPERATOR AND FIELD MAINTENANCE
GROUP 0606 PRIMARY FUEL PUMP

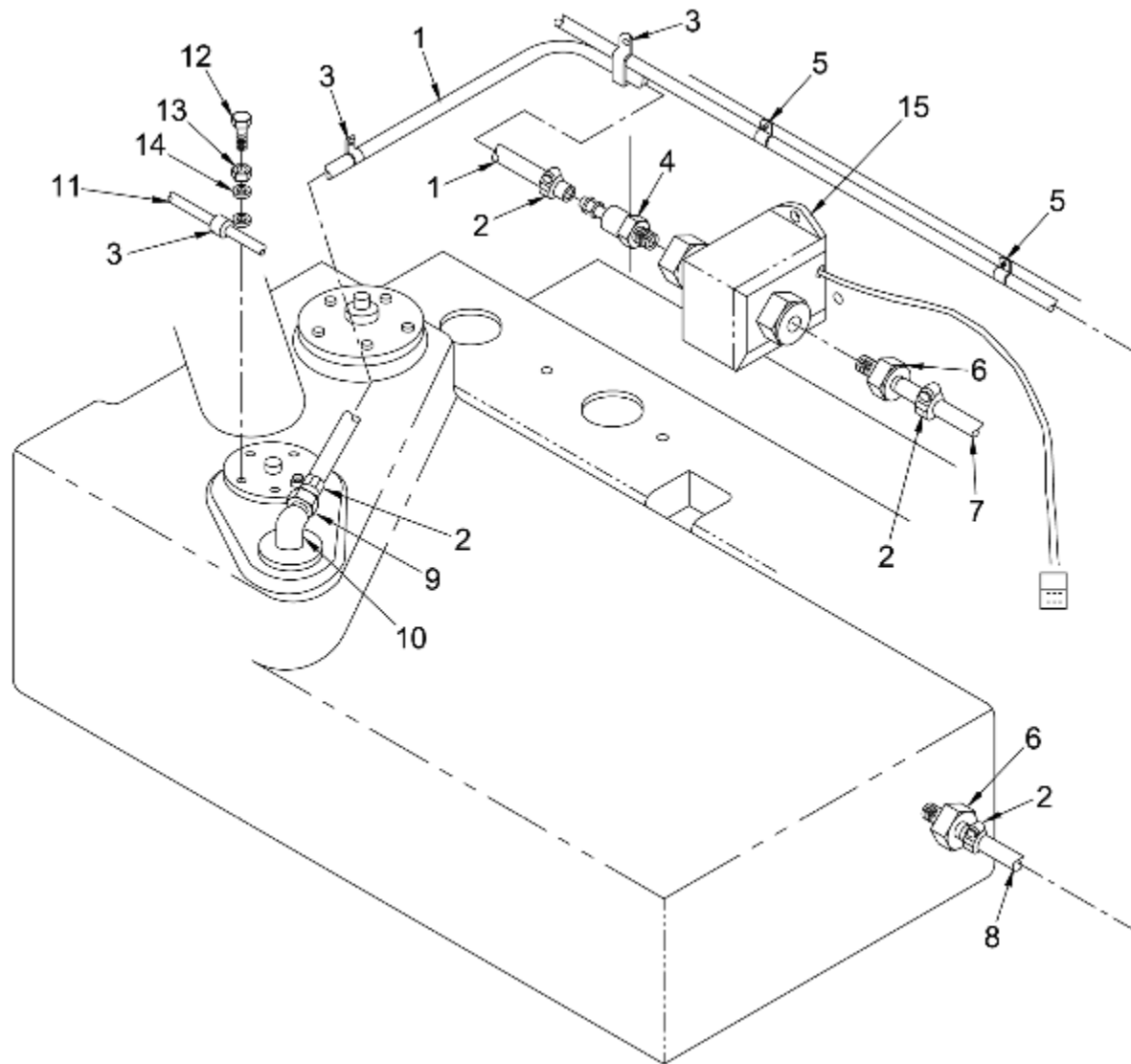


Figure 23. PRIMARY FUEL PUMP.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0606 PRIMARY FUEL PUMP								
FIGURE 23 PRIMARY FUEL PUMP								
1	MFFZZ	MOOZZ	MOOZZ	4720-01-470-6230	98441	208-5	. . HOSE, NONMETALLIC (MADE FROM P/N208-5(98441) 18.0 INCHES)	1
2	PAFZZ	PAOZZ	PAOZZ	4730-01-470-1626	30554	88-20561-1	. . CLAMP, HOSE	4
3	PAFZZ	PAOZZ	PAOZZ	5340-00-929-1794	80205	MS21334-31	. . CLAMP, LOOP	2
4	PAFZZ	PAOZZ	PAOZZ	2940-01-365-6535	55440	P50091	. . FILTER BODY, FLUID	1
5	PAFZZ	PAOZZ	PAOZZ	5340-01-476-9004	22175	43LC6-12-SS-R	. . STRAP, WEBBING	1
6	PAFZZ	PAOZZ	PAOZZ	4730-00-277-7904	93061	125HBL-5-2	. . ADAPTER, STRAIGHT	2
7	PAFZZ	MOOZZ	MOOZZ	4720-01-470-3929	98441	208-4	. . HOSE, NONMETALLIC MAKE FROM P/N 208-4 (98441), 14.2 INCHES	1
8	MFFZZ	MOOZZ	MOOZZ	4720-01-470-3929	98441	208-4	. . HOSE, NONMETALLIC MAKE FROM P/N 208-4 (98441), 40.0 INCHES	1
9	PAFZZ	PAOZZ	PAOZZ	4730-01-571-1767	30554	98-19744-03	. . ADAPTER, STRAIGHT, TUBE TO HOSE	1
10	PAFZZ	PAOZZ	PAOZZ	4730-00-432-2860	81343	SAE J514 4-4 070221	. . ELBOW, TUBE	1
11	PAFZZ	PAOZZ	PAOZZ	6150-01-477-1173	30554	98-19729	. . WIRING HARNESS	1
12	PAFZZ	PAOZZ	PAOZZ	5305-00-984-6210	05047	ASME B18.6.3	. . SCREW, MACHINE	1
13	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER, FLAT	1
14	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER, LOCK	1
15	PAFZZ	PAOZZ	PAOZZ	2910-01-517-8606	30554	98-19749	. . PUMP, FUEL, ELECTRICAL	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0607 AUXILIARY FUEL PUMP

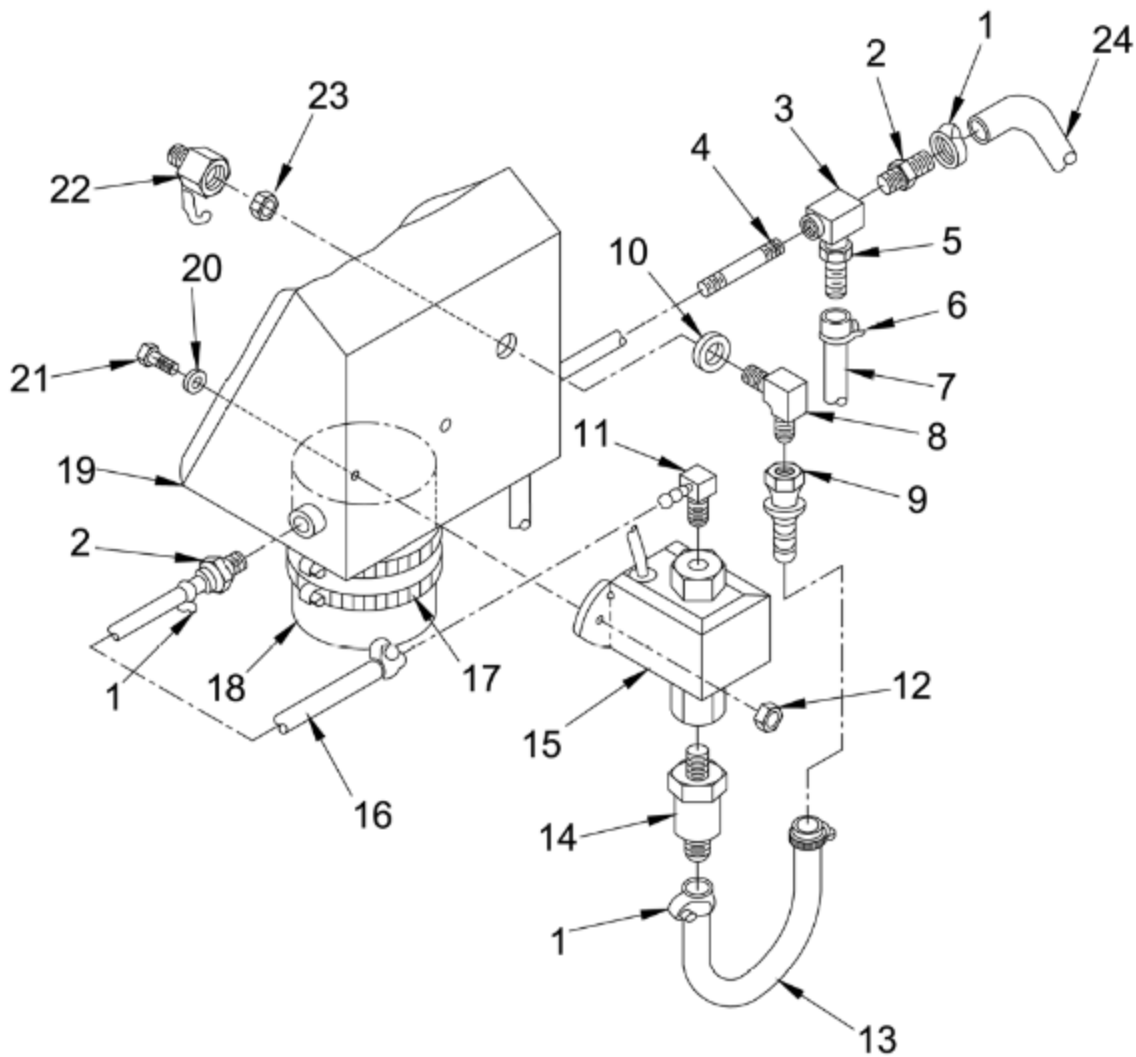
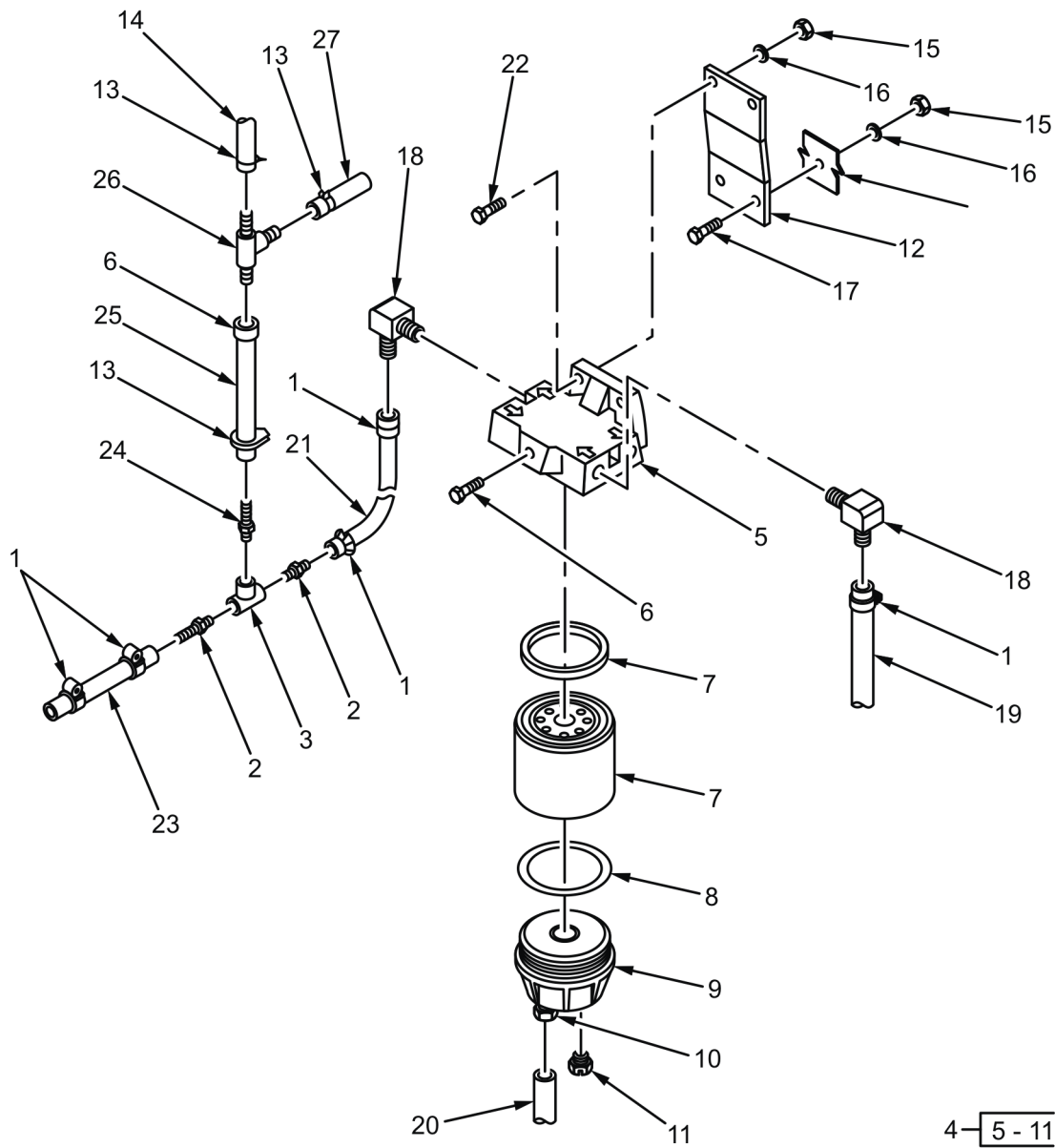


Figure 24. AUXILIARY FUEL PUMP.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0607 AUXILIARY FUEL PUMP								
FIGURE 24 AUXILIARY FUEL PUMP								
1	PAFZZ	PAOZZ	PAOZZ	4730-01-470-1626	30554	88-20561-1	. . CLAMP,HOSE	14
2	PAFZZ	PAOZZ	PAOZZ	4730-00-277-7904	93061	125HBL-5-2	. . ADAPTER,STRAIGHT, PI	1
3	PAFZZ	PAOZZ	PAOZZ	4730-00-595-1887	81343	J514	. . TEE, PIPE	2
4	PAFZA	PAOZA	PAOZA	4730-00-817-6194	81346	A733XS-10CFB	. . NIPPLE, PIPE	1
5	PAFZZ	PAFZZ	PAFZZ	4730-01-463-2091	93061	125HB-2-2	. . ADAPTER,STRAIGHT, PI	1
6	PAFZZ	PAOZZ	PAOZZ	4730-01-476-9921	2V507	5324K81	. . CLAMP, HOSE	6
7	XBFZZ	XBOZZ	XBOZZ		30554	98-19736-01	. . HOSE, NONMETALLIC	1
8	PAFZZ	PAOZZ	PAOZZ	4730-01-476-9775	81343	SAE J514 5-5 070701 C	. . ELBOW, HOSE	1
9	PAFZZ	XBOZZ	XBOZZ	7730-01-407-0649	5U990	205-605	. . ADAPTER, STRAIGHT, TU	2
10	PAFZZ	PAOZZ	PAOZZ	5310-01-399-2044	96906	MS14226-64YC816	. . WASHER,FLAT	1
11	PAFZZ	PAOZZ	PAOZZ	4730-01-102-6544	81343	SAE J1231 4-2 43146 0C	. . ELBOW,PIPE TO HOSE	2
12	PAFZZ	PAOZZ	PAOZZ	5310-00-208-9255	80205	MS21044C3	. . NUT,SELF-LOCKING,HEXAGON	2
13	MFFZZ	MOOZZ	MOOZZ	4720-01-470-6230	98441	208-5	. . HOSE, NONMETALLIC MAKE FROM P/N 208-5 (98441), 10.0 INCHES	2
14	PAFZZ	PAOZZ	PAOZZ	2940-01-365-6535	55440	P50091	. . FILTER BODY,FLUID	2
15	PAFZZ	PAOZZ	PAOZZ	2910-01-517-8606	30554	98-19749	. . PUMP,FUEL,ELECTRICAL	1
15	PAFZZ	PAOZZ	PAOZZ	2910-01-650-6533	30554	00-24002-2	. . PUMP,FUEL,ELECTRICAL (THAAD CONFIGURATION USE ONLY)	1
16	MFFZZ	MOOZZ	MOOZZ	4720-01-470-3929	98441	208-4	. . HOSE, NONMETALLIC MAKE FROM P/N 208-4 (98441), 12.0 INCHES	1
17	PAFZZ	PAOZZ	PAOZZ	4730-01-470-1423	30554	88-20561-5	. . CLAMP,HOSE	1
18	PAFZZ	PAOZZ	PAOZZ	4730-01-553-7181	30554	98-19544	. . COLLAR, FLARED, PIPE FITTING	1
19	XBFZZ	XBOZZ	XBOZZ		30554	98-19608	. . POCKET,FUEL FILL	1
20	PAFZZ	PAOZZ	PAOZZ	5310-00-014-5850	96906	MS27183-42	. . WASHER,FLAT	1
21	PAFZZ	PAOZZ	PAOZZ	5306-01-156-7663	19207	12325869	. . BOLT,MACHINE	1
22	PAFZZ	PAOZZ	PAOZZ	4730-00-812-1333	30554	69-539-2	. . CAP,TUBE	1
23	PAFZZ	PAOZZ	PAOZZ	4730-01-020-5607	96906	MS51860-54	. . LOCKNUT,TUBE FITTING	1

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM	AIR						DESCRIPTION AND	
NO.	ARMY	FORCE	USMC	NSN	CAGEC	PART NUMBER	USABLE ON CODE (UOC)	QTY
24	MFFZZ	MOOZZ	MOOZZ	4720-01-470-3929	98441	208-4	. . HOSE, NONMETALLIC MAKE FROM P/N 208-4 (98441), 9.0 INCHES	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0608 FUEL FILTER-WATER SEPARATOR



4-5-11

Figure 25. FUEL FILTER-WATER SEPARATOR.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a.	b.	c.					
	ARMY	AIR FORCE	USMC					
GROUP 0608 FUEL FILTER-WATER SEPARATOR								
FIGURE 25 FUEL FILTER-WATER SEPARATOR								
1	PAFZZ	PAOZZ	PAOZZ	4730-01-470-1626	30554	88-20561-1	. . CLAMP,HOSE	5
2	PAFZZ	PAOZZ	PAOZZ	4730-00-277-7904	93061	125HBL-5-2	. . ADAPTER,STRAIGHT	2
3	PAFZZ	PAOZZ	PAOZZ	4730-00-595-1887	81343	SAE J514 2-2-2 1404 38C	. . TEE,PIPE	1
4	PAFZZ	PAOZZ	PAOZZ	2910-01-477-0840	30554	98-19535	. . FILTER,FLUID	1
5	XBFZZ	XBOZZ	XBOZZ		55752	RK10214	. . FILTER HEAD	1
6	PAFZZ	PAOZZ	PAOZZ	5305-01-428-6791	55752	RK 10110	. . SCREW,MACHINE	1
7	PAFZZ	PAOZA	PAOZA	4330-01-374-9147	79396	33583	. . FILTER ELEMENT, FLUID	1
8	PAFZZ	PAOZZ	PAOZZ	5330-01-373-3649	55752	RK10012	. . GASKET	1
9	PAFZZ	PAOZZ	PAOZZ	2910-01-506-3912	55752	RK10215	. . BOWL,SEDIMENT	1
10	PAFZZ	PAOZZ	PAOZZ	4820-01-474-6910	55752	RK30476	. . DISK,VALVE	1
11	PAFZZ	PAOZZ	PAOZZ	5365-01-395-4744	55752	RK 20126	. . PLUG,MACHINE THREAD	1
12	XBFZZ	XBOZZ	XBOZZ		30554	98-19598	. . BRACKET,MOUNTING	1
13	PAFZZ	PAOZZ	PAOZZ	4730-01-476-9921	2V507	5324K81	. . CLAMP,HOSE	4
14	XBFZZ	XBOZZ	XBOZZ		30554	98-19736-01	. . HOSE,NONMETALLIC	4
15	PAFZZ	PAOZZ	PAOZZ	5310-00-685-2973	94135	12Z2007-260	. . NUT,SELF-LOCKING	2
16	PAFZZ	PAOZZ	PAOZZ	5310-00-809-4058	96906	MS27183-10	. . WASHER, FLAT, CAD	2
17	PAFZZ	PAOZZ	PAOZZ	5306-00-484-5730	1UVT5	307608	. . BOLT,MACHINE	1
18	PAFZZ	PAFZZ	PAFZZ	4730-01-476-9101	81343	4-4-430260C	. . ELBOW,HOSE	2
19	MFFZZ	MOOZZ	MOOZZ	4720-01-470-3929	98441	208-4	. . HOSE,NONMETALLIC MAKE FROM P/ N 208-4 (98441), 14.2 INCHES	1
20	MFFZZ	MOOZZ	MOOZZ	4720-01-470-6230	98441	208-5	. . HOSE, NONMETALLIC MAKE FROM P/N 208-5 (98441), 15.7 INCHES	1
21	MFFZZ	MOOZZ	MOOZZ	4720-01-470-3929	98441	208-4	. . HOSE, NONMETALLIC MAKE FROM P/N 208-4 (98441), 3.6 INCHES	1
22	PAFZZ	PAOZZ	PAOZZ	5305-01-381-9970	30554	88-20260-34	. . SCREW,CAP,HEXAGON HEAD	2
23	MFFZZ	MOOZZ	MOOZZ	4720-01-470-3929	98897	5HE25100-101	. . HOSE, NONMETALLIC MAKE FROM P/N 208-4 (98441), 3.0 INCHES	1
24	PAFZZ	PAFZZ	PAFZZ	4730-01-463-2091	93061	125 HB-2-2	. . ADAPTER, STRAIGHT, PIPE TO PIPE .	1

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
25	XBFZZ	XBOZZ	XBOZZ		30554	98-19736-02	. . HOSE, NONMETALLIC	1
26	PAFZZ	PAOZZ	PAOZZ	4730-01-476-9224	0DJN2	0412TEEN	. . TEE, TUBE	1
27	PAFZZ	PAOZZ	PAOZZ	4720-01-531-7274	30554	98-19736-03	. . HOSE, NONMETALLIC	1
28	PAFZZ	PAOZZ	PAOZZ	4730-01-641-0009	30554	98-19769	. . CLAMP, HOSE	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0609 AIR CLEANER ASSEMBLY

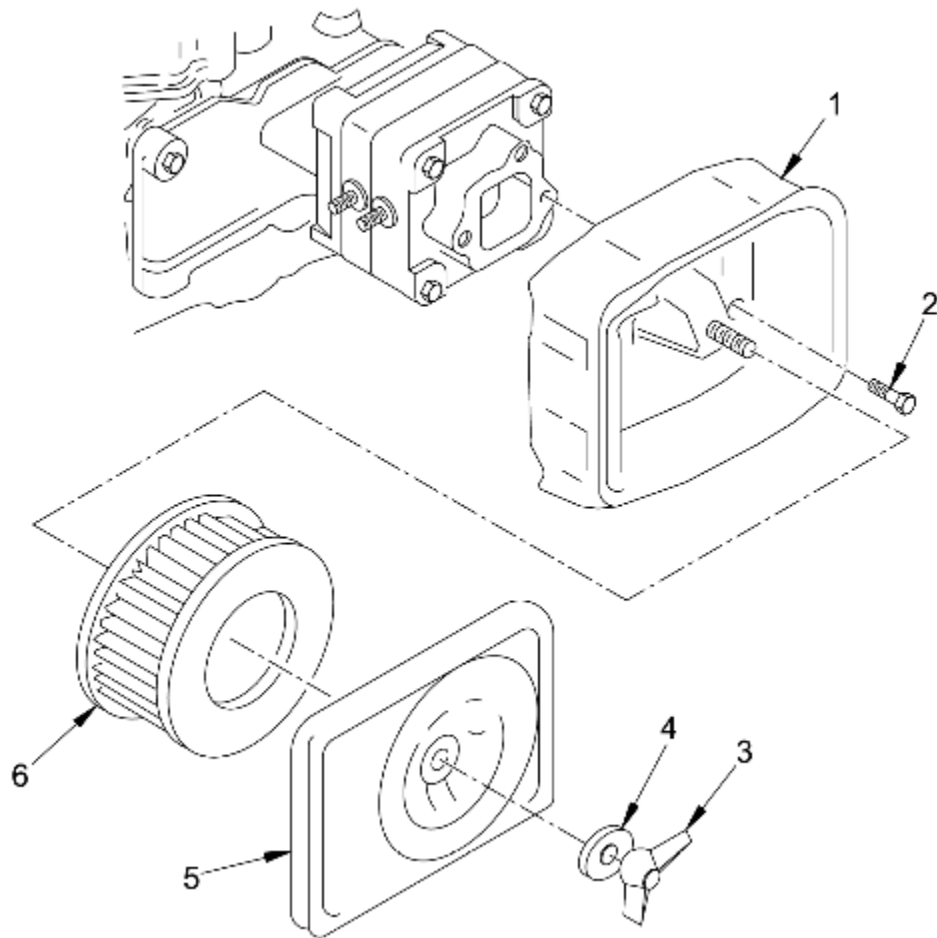


Figure 26. AIR CLEANER ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 0609 AIR CLEANER ASSEMBLY								
FIGURE 26 AIR CLEANER ASSEMBLY								
1	PAFZZ	PAOZZ	PAOZZ	2940-01-389-9942	0AK42	114250-12530	. . CASE, AIR CLEANER IN	1
2	PAFZZ	PAOZZ	PAOZZ	5305-01-300-6264	19207	12485434-074	. . SCREW, CAP, HEXAGON	1
3	PAFZZ	PAOZZ	PAOZZ	5310-01-327-0778	0AK42	114250-12550	. . NUT, PLAIN, HEXAGON	1
4	PAFZZ	PAOZZ	PAOZZ	5310-01-322-8747	0AK42	114250-12560	. . WASHER, SEAL	1
5	PAFZZ	PAOZZ	PAOZZ	5340-01-323-7879	0AK42	114250-12520	. . COVER, ACCESS	1
6	PAFZZ	PAOZZ	PAOZZ	2940-01-310-4495	0AK42	114250-12581	. . FILTER ELEMENT	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0701 MAIN ACCESS COVER

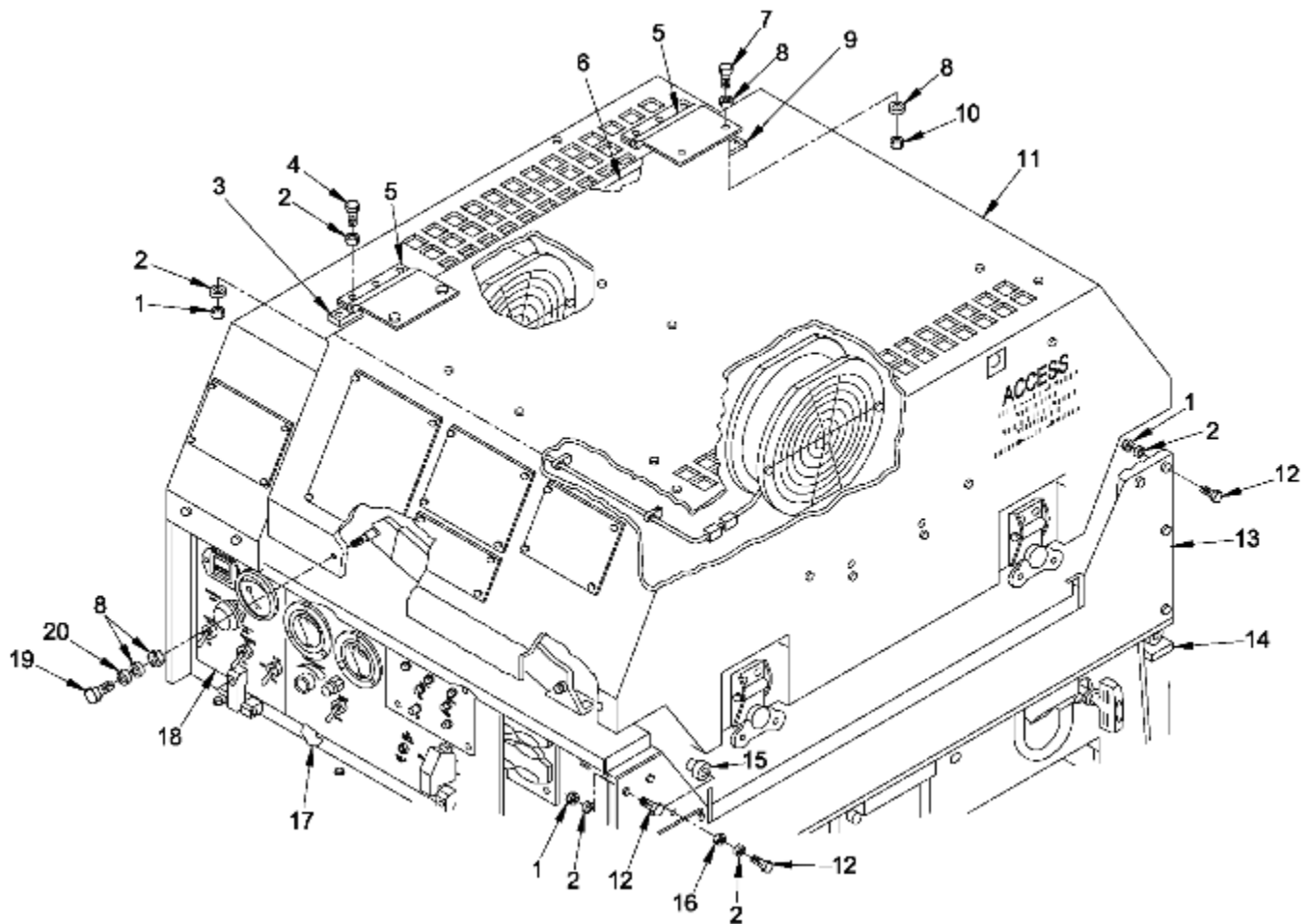


Figure 27. MAIN ACCESS COVER (Sheet 1 of 4).

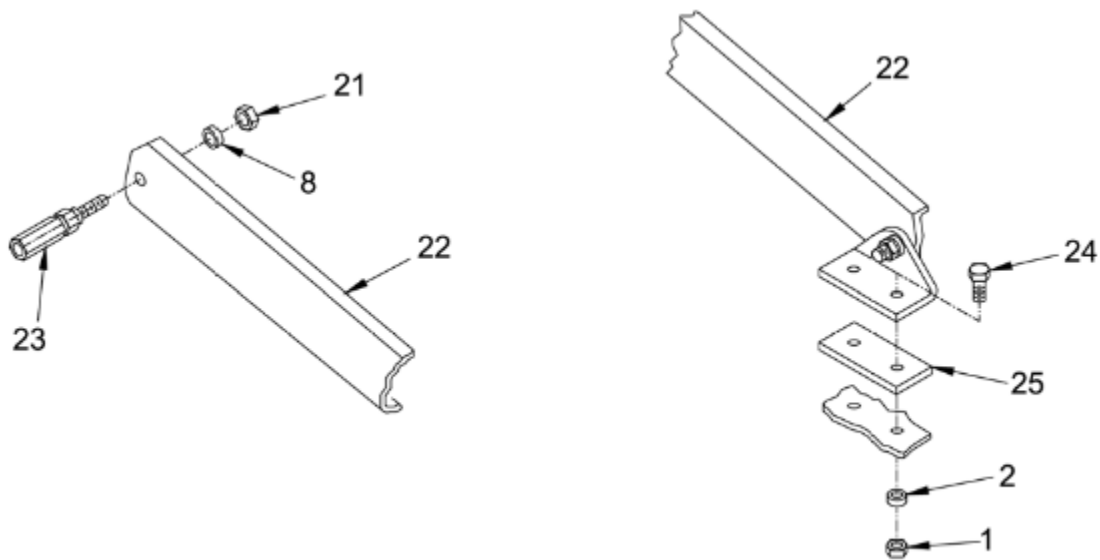


Figure 27. MAIN ACCESS COVER (Sheet 2 of 4).

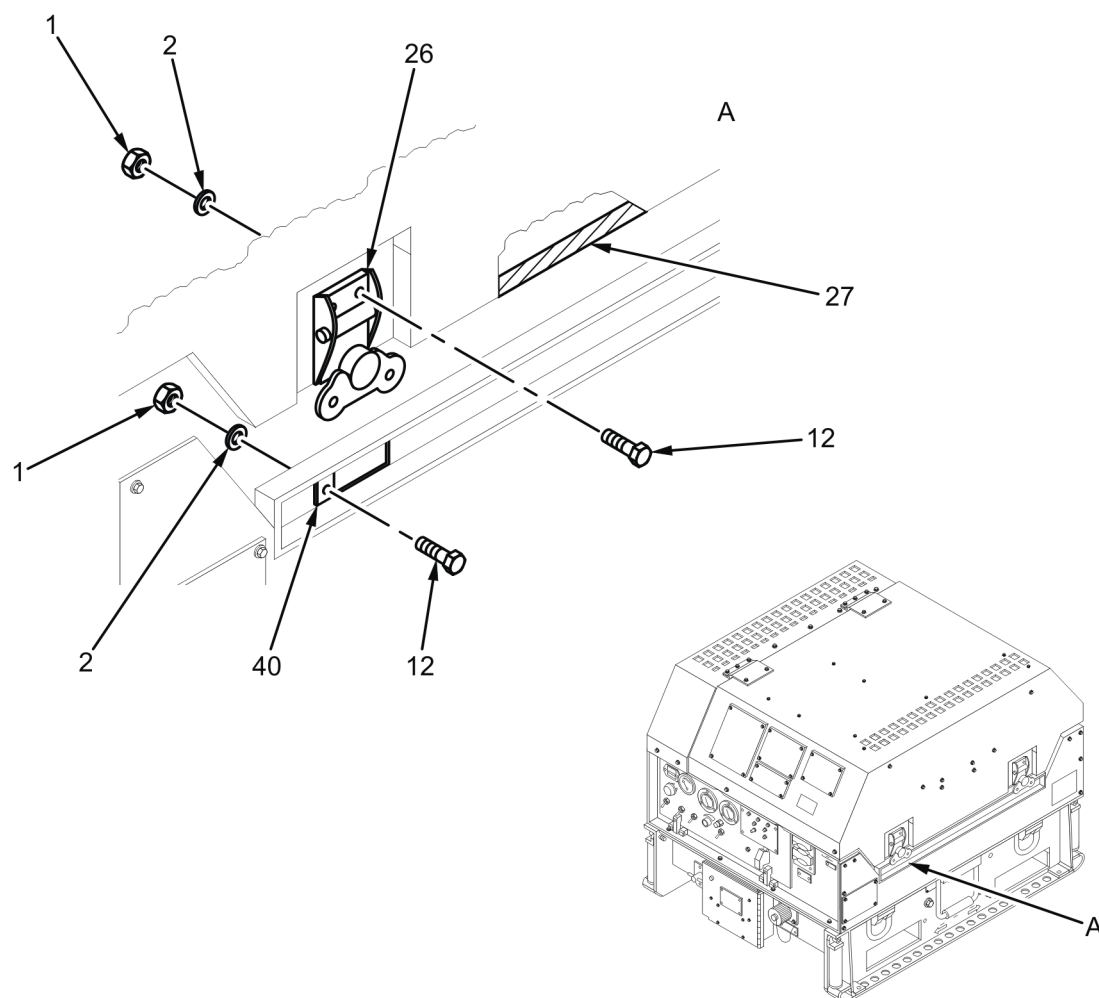


Figure 27. MAIN ACCESS COVER (Sheet 3 of 4).

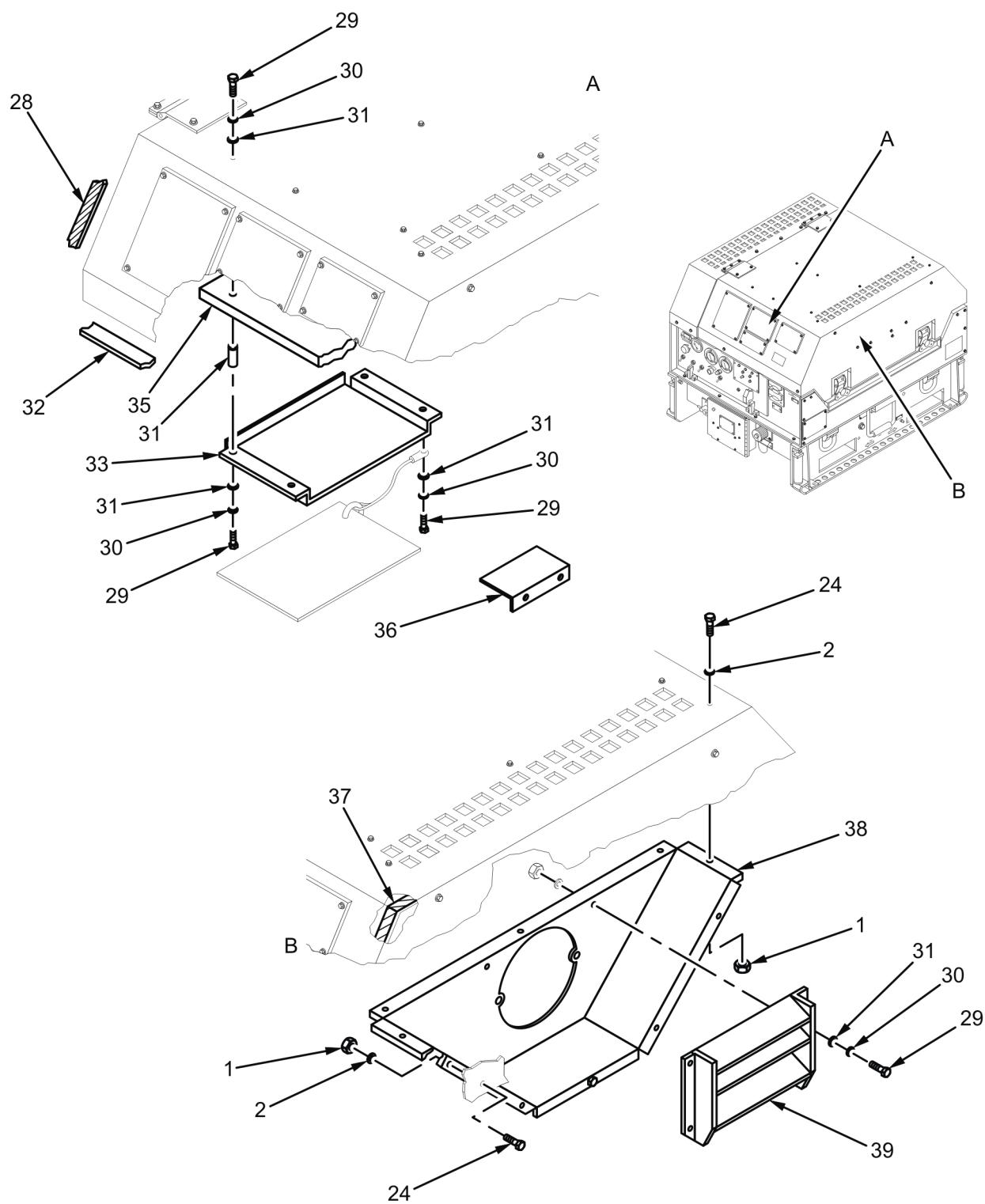


Figure 27. MAIN ACCESS COVER (Sheet 4 of 4).

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0701 MAIN ACCESS COVER								
FIGURE 27 MAIN ACCESS COVER								
1	PAFZZ	PAOZZ	PAOZZ	5310-00-208-9255	80205	MS21044C3	. . NUT,SELF-LOCKING,HEXAGON	76
2	PAFZZ	PAOZZ	PAOZZ	5310-00-014-5850	96906	MS27183-42	. . WASHER, FLAT, .217 ID x .5 OD	128
3	XBFZZ	XBOZZ	XBOZZ		30554	98-19576-01	. . GASKET	2
4	PAFZZ	PAOZZ	PAOZZ	5305-01-365-6313	30554	88-20260-23	. . SCREW,CAP,HEXAGON HEAD	10
5	PAFZZ	PAOZZ	PAOZZ	5340-01-476-9071	30554	98-19575	. . HINGE,BUTT	2
6	PAFZZ	PAOZZ	PAOZZ	5330-01-367-6329	30554	88-22705	. . SEAL,NONMETALLIC SP	1
7	PAFZZ	PAOZZ	PAOZZ	5305-01-056-1501	29215	274825	. . SCREW,CAP,HEXAGON HEAD	1
8	PAFZZ	PAOZZ	PAOZZ	5310-00-809-4058	96906	MS27183-10	. . WASHER, FLAT, CAD	58
9	XBFZZ	XBOZZ	XBOZZ		30554	98-19576-02	. . GASKET	2
10	PAFZZ	PAOZZ	PAOZZ	5310-00-685-2973	94135	12Z2007-260	. . NUT,SELF-LOCKING,HEXAGON	26
11	XBFZZ	XBOZZ	XBOZZ		30554	98-19560	. . COVER,MAIN ACCESS	1
12	PAFZZ	PAOZZ	PAOZZ	5306-01-156-7663	19207	12325869	. . BOLT,MACHINE	49
13	XBFZZ	XBOZZ	XBOZZ		30554	98-19578	. . PANEL,RIGHT SIDE	1
14	XBFFF	XBFFF	XBFFF		30554	98-19505	. ENGINE/GEN/BASE ASS (SEE WP 0118, FIGURE 30 FOR PARTS BREAKDOWN)	1
15	PAFZZ	PAOZZ	PAOZZ	5940-01-476-9272	30554	98-19718-01	. . BATTERY, TERMINAL,STUD	1
16	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER,LOCK #6, SPLIT, CADMIUM .	1
17	PAFZZ	PAOZZ	PAOZZ	5365-01-477-2738	30554	98-19701	. . SPACER,PLATE	1
18	XBFFF	XBOOO	XBOOO		30554	98-19509	. . CONTROL PANEL ASSEMBLY 60 Hz (SEE WP 0101, FIGURE 13 FOR PARTS BREAKDOWN) UOC: LQR	2
18	PAFZZ	PAOZZ	PAOZZ	6110-01-478-0097	30554	98-19508	. . CONTROL PANEL ASSEMBLY 400 Hz (SEE WP 0101, FIGURE 13 FOR PARTS BREAKDOWN) UOC: LQQ	2
19	PAFZZ	PAOZZ	PAOZZ	5305-00-993-2738	80205	MS35207-280	. . SCREW,MACHINE	2
20	PAFZZ	PAOZZ	PAOZZ	5310-00-543-2410	80205	MS35338-40	. . WASHER,LOCK CADMIUM	10
21	PAFZZ	PAOZZ	PAOZZ	5310-00-889-2589	80205	MS21044C4	. . NUT,SELF-LOCKING, -28 UNC	2
22	XBFZZ	XBOZZ	XBOZZ		30554	98-19548	. . PLATE,METAL	2
23	PAFZZ	PAOZZ	PAOZZ	3040-00-374-5732	04627	120456	. . BALL JOINT	2
24	PAFZZ	PAOZZ	PAOZZ	5305-01-378-7899	30554	88-20260-22	. . SCREW,CAP,HEXAGON	54

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
25	XBFZZ	XBOZZ	XBOZZ		30554	98-19621	. . SPACER	2
26	PAFZZ	PAOZZ	PAOZZ	5340-01-464-8407	94222	K5-2857-52	. . CATCH,CLAMPING	2
27	PAFZZ	PAOZZ	PAOZZ	5330-01-476-9106	30554	98-19645-03-201	. . GASKET	2
28	PAFZZ	PAOZZ	PAOZZ	5330-01-477-9623	59502	4119NX0108E05	. . GASKET	1
29	PAFZZ	PAOZZ	PAOZZ	5305-01-470-1425	30554	88-20260-11	. . SCREW,MACHINE	18
30	PAFZZ	PAOZZ	PAOZZ	5310-00-407-9566	80205	MS35338-45	. . WASHER,LOCK	22
31	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8544	96906	MS27183-7	. . WASHER,FLAT	30
32	PAFZZ	PAOZZ	PAOZZ	5330-01-476-9106	30554	98-19645-03-201	. . GASKET	2
33	XBFZZ	XBOZZ	XBOZZ		30554	98-19548	. . PLATE,METAL	1
34	PAFZZ	PAOZZ	PAOZZ	5340-01-476-9030	30554	98-19727	. . STANDOFF,THREADED,S	4
35	XBFZZ	XBOZZ	XBOZZ		30554	98-19603	. . INSULATION,ACOUSTIC	1
36	PAFZZ	PAOZZ	PAOZZ	5340-01-477-9625	30554	98-19735	. . BRACKET,MOUNTING	1
37	XBFZZ	XBOZZ	XBOZZ		30554	98-19603	. . INSULATION,ACOUSTIC	1
38	XBFZZ	XBOZZ	XBOZZ		30554	98-19561	. . PANEL,AIR OUTLET	1
39	XBFZZ	XBOZZ	XBOZZ		30554	98-19584	. . LOUVER,RAIN DEFLECT	2
40	XBFZZ	XBOZZ	XBOZZ		30554	98-19577	. . PLATE,METAL	2
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0702 FRAME AND HOUSING PANELS

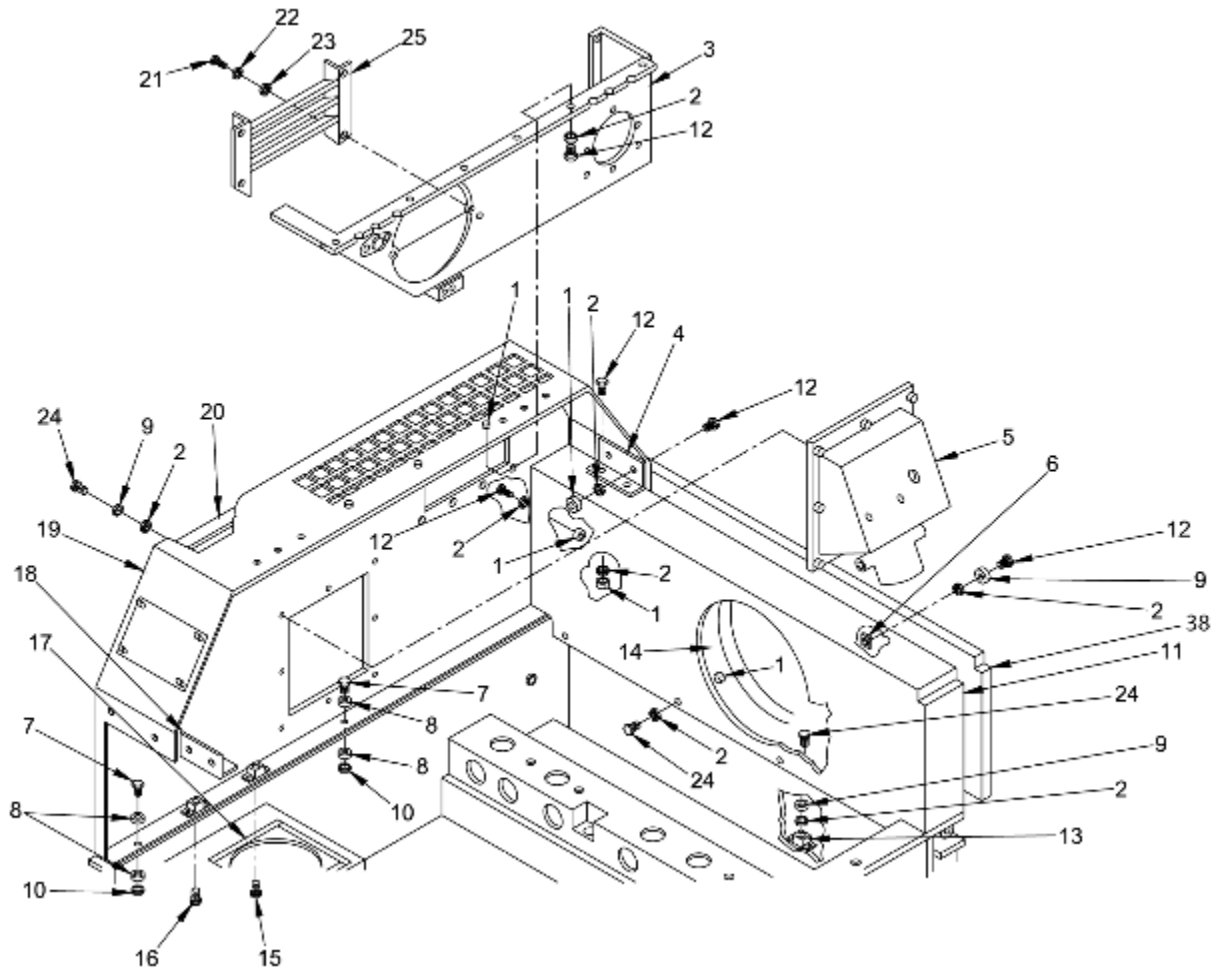


Figure 28. FRAME AND HOUSING PANELS (Sheet 1 of 2).

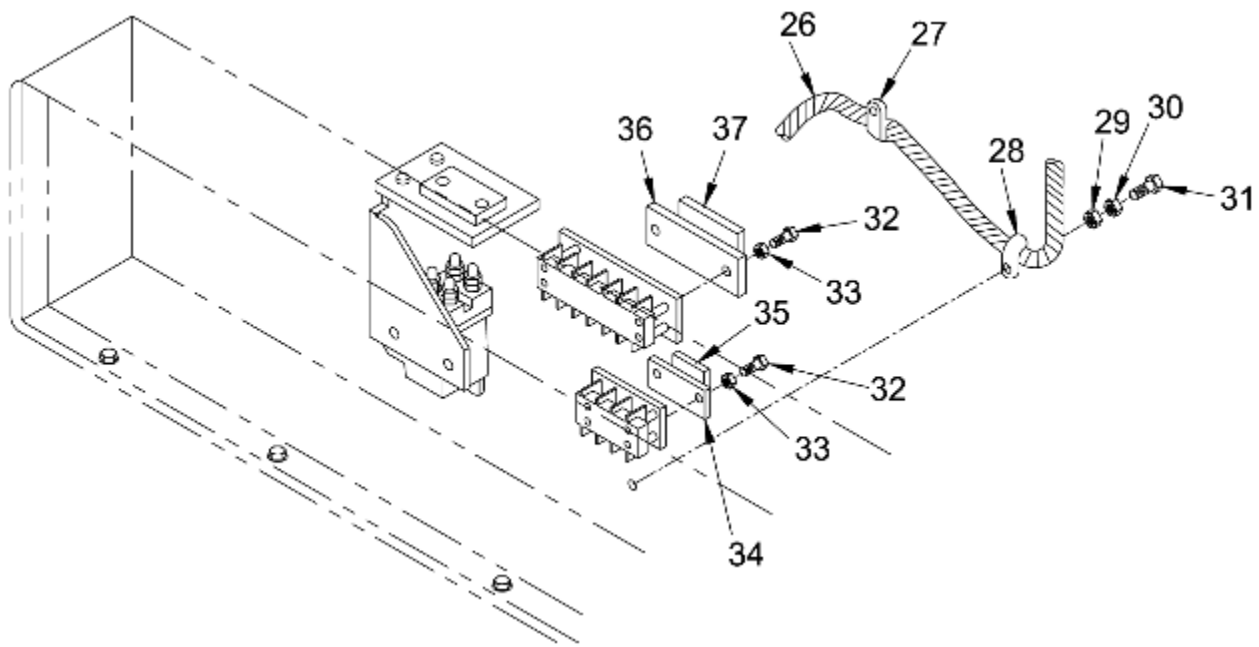


Figure 28. FRAME AND HOUSING PANELS (Sheet 2 of 2).

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a.	b.	c.					
	ARMY	AIR FORCE	USMC					
GROUP 0702 FRAME AND HOUSING PANELS								
FIGURE 28 FRAME AND HOUSING PAN- ELS								
1	PAFZZ	PAOZZ	PAOZZ	5310-00-208-9255	80205	MS21044C3	. . NUT,SELF-LOCKING,HEXAGON	5
2	PAFZZ	PAOZZ	PAOZZ	5310-00-014-5850	96906	MS27183-42	. . WASHER,FLAT	8
3	XBFZZ	XBOZZ	XBOZZ		30554	98-19573	. . PANEL,AIR OUTLET	1
4	XBFZZ	XBOZZ	XBOZZ		30554	98-19581-02	. . BRACKET,MOUNTING	1
5	XBFZZ	XBOZZ	XBOZZ		30554	98-19608	. . POCKET,FUEL FILL	1
6	PAFZZ	PAOZZ	PAOZZ	5310-00-903-8595	3F8S3	D07931-1032-3B	. . NUT,PLAIN,CLINCH	90
7	PAFZZ	PAOZZ	PAOZZ	5305-01-056-1501	29215	274825	. . SCREW,CAP,HEXAGON HEAD	2
8	PAFZZ	PAOZZ	PAOZZ	5310-00-809-4058	96906	MS27183-10	. . WASHER,FLAT, CAD	4
9	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER,LOCK, #6, SPLIT, CAD	3
10	PAFZZ	PAOZZ	PAOZZ	5310-00-685-2973	94135	12Z2007-260	. . NUT,SELF-LOCKING,HEAD	2
11	XBFZZ	XBOZZ	XBOZZ		30554	98-19564	. . PANEL,AIR INLET	1
12	PAFZZ	PAOZZ	PAOZZ	5306-01-156-7663	19207	12325869	. . BOLT,MACHINE	5
13	PAFZZ	PAOZZ	PAOZZ	5310-01-366-8134	78553	C7941-1032-3B	. . NUT,PLAIN,SQUARE	4
14	XBFZZ	XBOZZ	XBOZZ		30554	98-19564	. . PANEL,AIR INLET	1
15	PAFZZ	PAOZZ	PAOZZ	5306-00-484-5730	1UVT5	307608	. . BOLT,MACHINE	1
16	PAFZZ	PAOZZ	PAOZZ	5305-12-163-0919	D8286	SEMS DIN7985-M4X1 0-A2-70-H	. . SCREW, HD TOOTH	2
17	PAFZZ	PAOZZ	PAOZZ	5330-01-476-9106	30554	98-19645-03-201	. . GASKET	4
18	XBFZZ	XBOZZ	XBOZZ		30554	98-19581-01	. . BRACKET,MOUNTING	1
19	XBFZZ	XBOZZ	XBOZZ		30554	98-19570	. . PANEL, LEFT SIDE	1
20	XBFZZ	XBOZZ	XBOZZ		30554	98-19623	. . INSULATION,ACOUSTIC	1
21	PAFZZ	PAOZZ	PAOZZ	5305-01-470-1425	30554	88-20260-11	. . SCREW,MACHINE	1
22	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8544	96906	MS27183-7	. . WASHER,FLAT	1
23	PAFZZ	PAOZZ	PAOZZ	5310-00-407-9566	80205	MS35338-45	. . WASHER,LOCK	1
24	PAFZZ	PAOZZ	PAOZZ	5305-01-378-7899	30554	88-20260-22	. . SCREW,CAP,HEXAGON HEAD	2
25	XBFZZ	XBOZZ	XBOZZ		30554	98-19584	. . LOUVER,RAIN DEFLECT	1
26	PAFZZ	PAOZZ	PAOZZ	6150-01-476-9338	30554	98-19633	. . HARNESS, WIRING (60 Hz) UOC: LQR	1

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
26	PAFZZ	PAOZZ	PAOZZ	6150-01-477-1173	30554	98-19729	. . WIRING HARNESS, 400 Hz, UOC:LQQ	1
27	PAFZZ	PAOZZ	PAOZZ	5340-01-476-9006	22175	43LC6-8-SZ-R	. . CLAMP,LOOP	1
28	PAFZZ	PAOZZ	PAOZZ	5340-00-843-7825	80205	MS21333-68	. . CLAMP,LOOP	1
29	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8544	96906	MS27183-7	. . WASHER, FLAT	1
30	PAFZZ	PAOZZ	PAOZZ	5310-00-407-9566	80205	MS35338-45	. . WASHER,LOCK	1
31	PAFZZ	PAOZZ	PAOZZ	5305-01-470-1425	30554	88-20260-11	. . SCREW,MACHINE	1
32	PAFZZ	PAOZZ	PAOZZ	5305-00-036-6968	97403	13214E3290-18	. . SCREW, ASSEMBLED WASHER	4
33	PAFZZ	PAOZZ	PAOZZ	5310-00-983-8483	96906	MS27183-5	. . WASHER,FLAT	4
34	XBFZZ	XBOZZ	XBOZZ		30554	98-19709-01	. . LABEL,CAUTION	1
35	XBFZZ	XBOZZ	XBOZZ		30554	98-19725-01	. . COVER,PROTECTIVE	1
36	XBFZZ	XBOZZ	XBOZZ		15563	98-19709-02	. . LABEL,CAUTIONS	1
37	XBFZZ	XBOZZ	XBOZZ		30554	98-19725-02	. . COVER,PROTECTIVE	1
38	XBFZZ	XBOZZ	XBOZZ		30554	98-19565	. . COVER,AIR INLET	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0703 FRAME AND LIFTING HANDLES, LIFTING RINGS

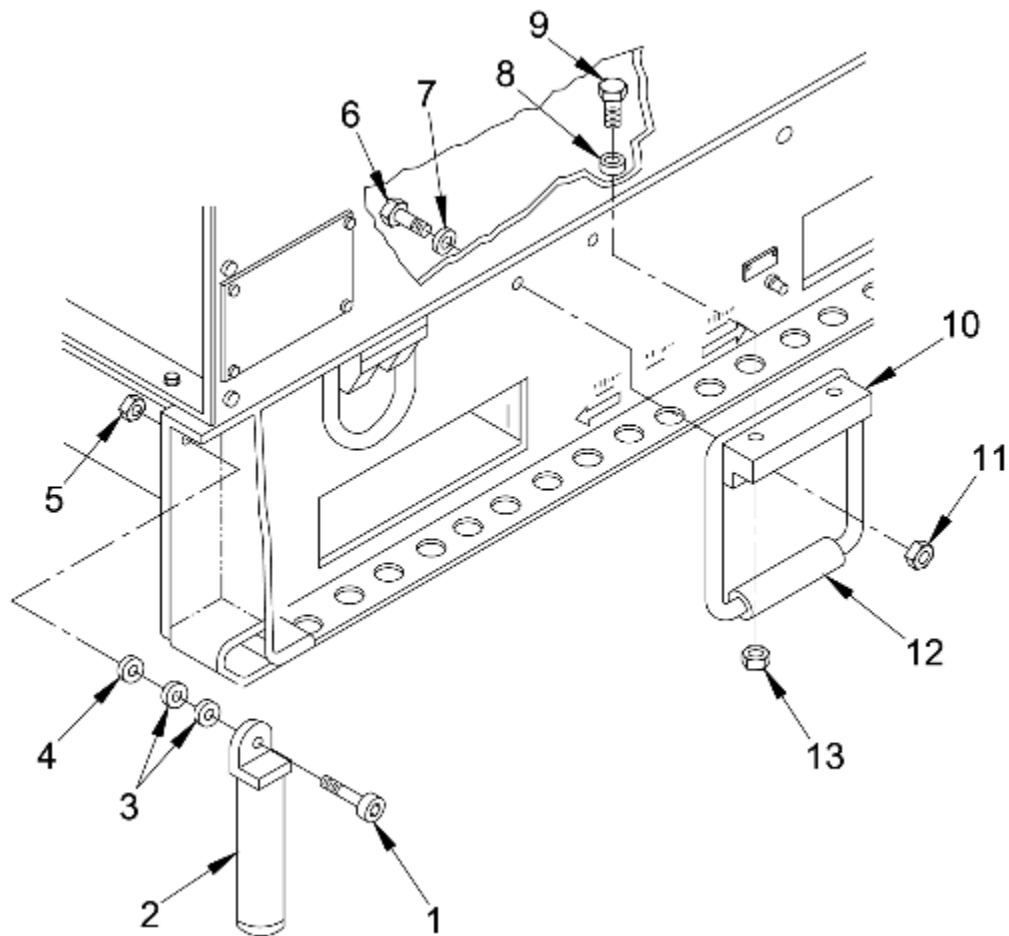


Figure 29. FRAME AND LIFTING HANDLES, LIFTING RINGS.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 0703 FRAME AND LIFTING HANDLES, LIFTING RINGS								
FIGURE 29 FRAME AND LIFTING HAN- DLES, LIFTING RINGS								
1	PAFZZ	PAOZZ	PAOZZ	5305-01-476-9077	2V507	90298A709	. . SCREW,SHOULDER	4
2	XBFZZ	XBOZZ	XBOZZ		30554	98-19615	. . HANDLE,LIFTING	4
3	PAFZZ	PAOZZ	PAOZZ	5310-01-243-9441	39428	92161A033	. . WASHER,SPRING TENSION	4
4	PAFZZ	PAOZZ	PAOZZ	5310-01-306-1624	96906	MS27183-58	. . WASHER,FLAT UOC:LQQ	4
5	PAFZZ	PAOZZ	PAOZZ	5310-01-366-4412	08928	21NTE616	. . NUT,SELF-LOCKING,HEAD	4
6	PAFZZ	PAOZZ	PAOZZ	5305-01-365-6313	30554	88-20260-23	. . SCREW,CAP,HEXAGON HEAD	4
7	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER,FLAT	4
8	PAFZZ	PAOZZ	PAOZZ	5310-00-809-4058	96906	MS27183-10	. . WASHER,FLAT, CAD	4
9	PAFZZ	PAOZZ	PAOZZ	5310-01-056-1501	29215	274825	. . SCREW,CAP,HEXAGON HEAD	4
10	XBFZZ	XBOZZ	XBOZZ		30554	98-19556	. . BRACKET,MOUNTING	2
11	PAFZZ	PAOZZ	PAOZZ	5310-00-208-9255	80205	MS21044C3	. . NUT,SELF-LOCKING,HEAD	4
12	XBFZZ	XBOZZ	XBOZZ		30554	98-19555	. . HANDLE,LIFTING,SIDE	2
13	PAFZZ	PAOZZ	PAOZZ	5310-00-685-2973	94135	12Z2007-260	. . NUT,SELF-LOCKING,HEX	4
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0704 NATO SLAVE RECEPTACLE

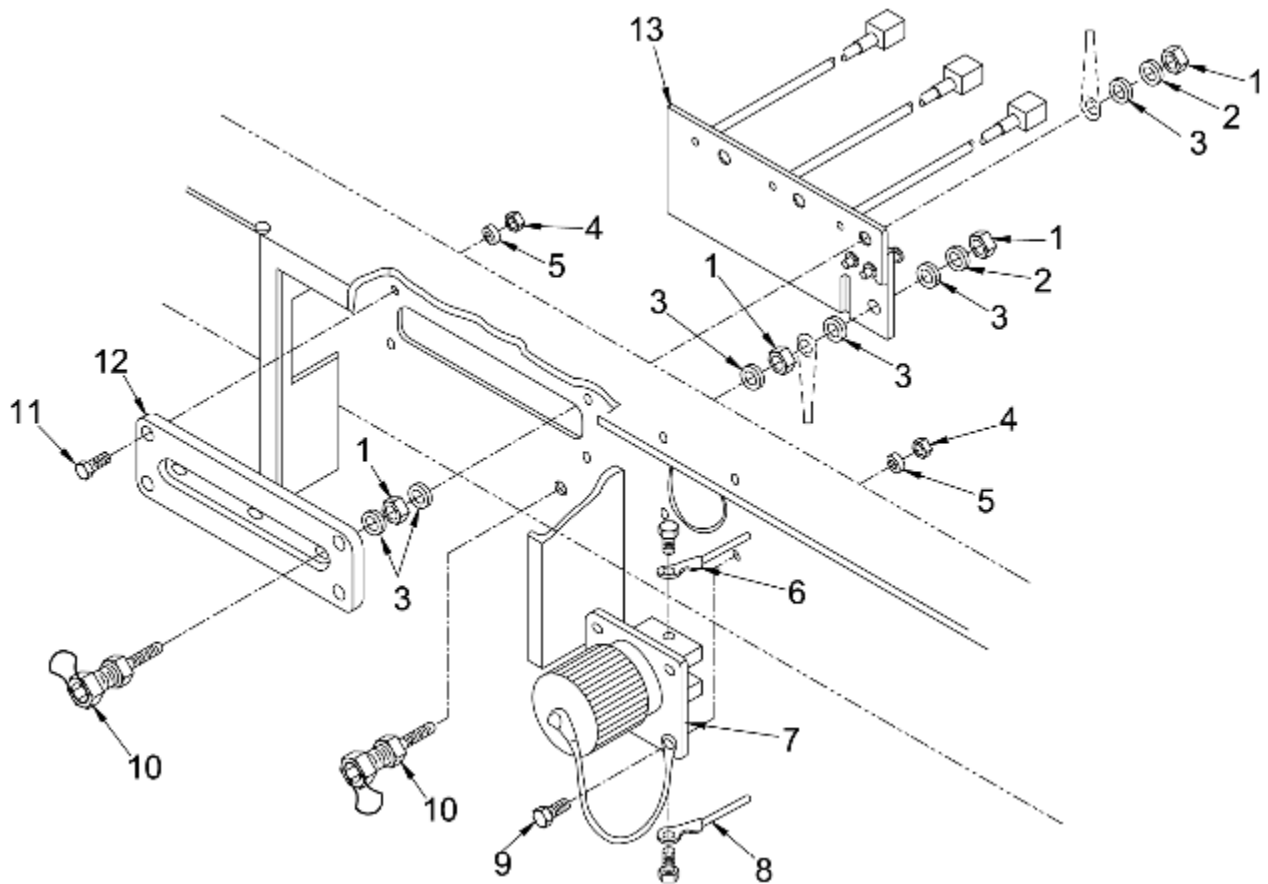


Figure 30. NATO SLAVE RECEPTACLE (Sheet 1 of 2).

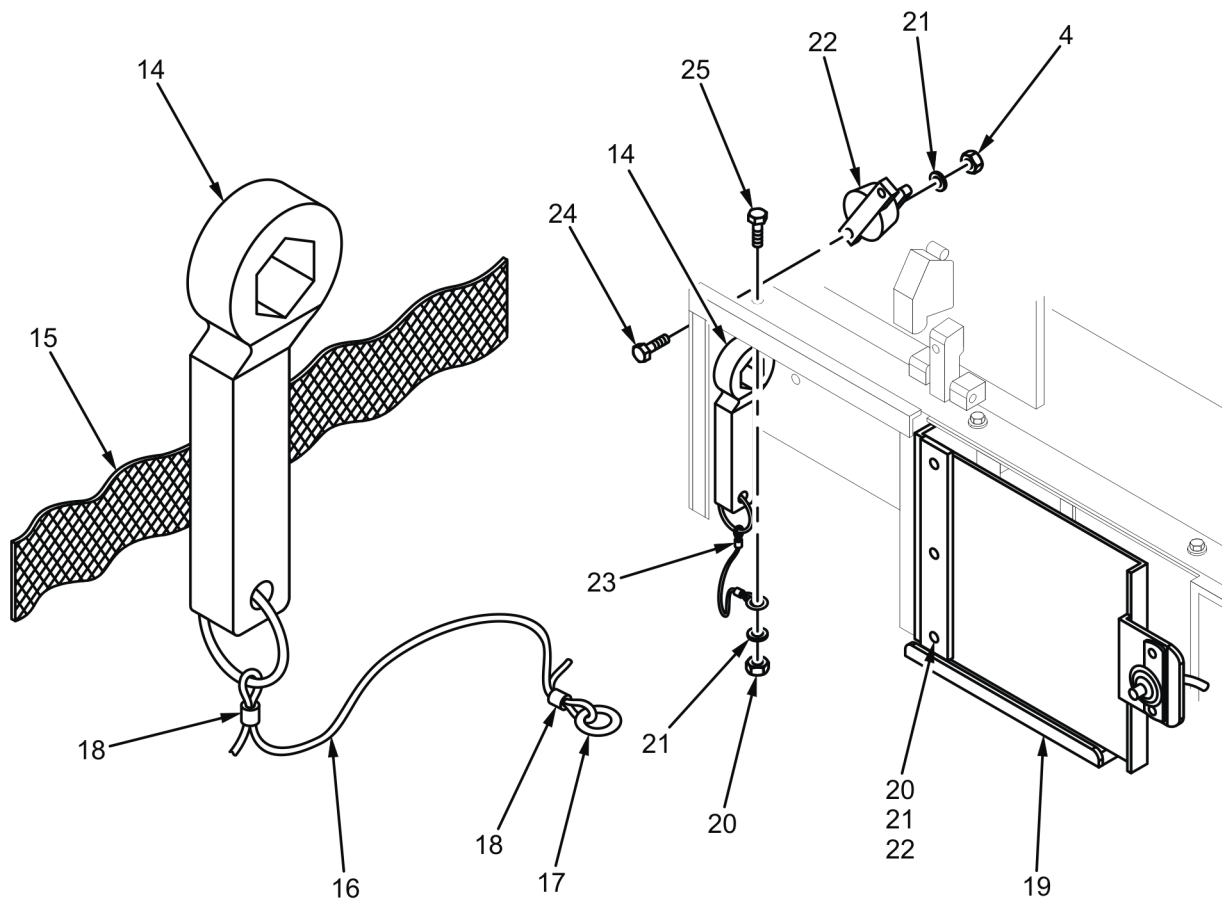


Figure 30. NATO SLAVE RECEPTACLE (Sheet 2 of 2).

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0704 NATO SLAVE RECEPTACLE								
FIGURE 30 NATO SLAVE RECEPTACLE								
1	PAFZZ	PAOZZ	PAOZZ	5310-00-850-6855	96906	MS35691-12	. . NUT,PLAIN,HEXAGON	4
2	PAFZZ	PAOZZ	PAOZZ	5310-01-477-9621	30554	88-20556-6	. . WASHER,LOCK	4
3	PAFZZ	PAOZZ	PAOZZ	5310-00-081-4219	96906	MS27183-12	. . WASHER,FLAT	5
4	PAFZZ	PAOZZ	PAOZZ	5310-00-208-9255	80205	MS21044C3	. . NUT,SELF-LOCKING,HEXAGON	10
5	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER,FLAT	8
6	PAFZZ	PAOZZ	PAOZZ	6150-01-476-8666	30554	98-19596	. . LEAD,ELECTRICAL	1
7	PAFZZ	PAOZZ	PAOZZ	5935-01-097-9974	19207	11674728	. . CONNECTOR,RECEPTACLE	1
8	PAFZZ	PAOZZ	PAOZZ	6150-01-476-8673	30554	98-19595	. . LEAD,ELECTRICAL	1
9	PAFZZ	PAOZZ	PAOZZ	5305-01-464-6667	30554	88-22793-4	. . SCREW,MACHINE	8
10	PAFZZ	PAOZZ	PAOZZ	5940-00-234-3383	30554	69-692-6	. . TERMINAL,STUD	4
11	PAFZZ	PAOZZ	PAOZZ	5305-00-993-1848	80205	MS35207-265	. . SCREW,MACHINE	4
12	XBFZZ	XBOZZ	XBOZZ		30554	19740	. . BOARD,LOAD	1
13	PAFZZ	PAOZZ	PAOZZ	5915-01-477-9756	60177	29440	. . FILTER ASSEMBLY	1
14	PAFZZ	PAOZZ	PAOZZ	5120-01-483-3706	30554	98-19599	. . WRENCH,BOX	1
15	XBFZZ	XBOZZ	XBOZZ		52152	SJ3541 TYPE 400	. . TAPE,HOOK AND LOOP	1
16	XBFZZ	XBOZZ	XBOZZ		2V507	8936T43	. . CORD,POLYESTER	1
17	PAFZZ	PAOZZ	PAOZZ	5940-00-107-1481	96906	MS20659-104	. . TERMINAL,LUG	1
18	PAFZZ	PAOZZ	PAOZZ	4030-01-114-3894	96906	MS51844-23	. . SWAGING SLEEVE,WIRE	2
19	XBFZZ	XBOZZ	XBOZZ	6115-01-553-8439	30554	98-19568	. . COVER,ELECTRICAL GE	1
20	PAFZZ	PAOZZ	PAOZZ	5310-00-982-6814	80205	MS21044C08	. . NUT,SELF-LOCKING, HEXAGON	3
21	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER, FLAT	3
22	PAFZZ	PAOZZ	PAOZZ	5905-01-293-0175	59656	Z320PA40A	. . RESISTOR,VOLTAGE SE	1
23	PAFZZ	PAOZZ	PAOZZ	5325-01-237-2933	52152	SJ-3542	. . FASTENER	1
24	PAFZZ	PAOZZ	PAOZZ	5305-01-464-6667	30554	88-22793-4	. . SCREW, MACHINE	2
25	PAFZZ	PAOZZ	PAOZZ	5306-01-156-7663	19207	12325869	. . BOLT, MACHINE	3
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0705 SKID BASE

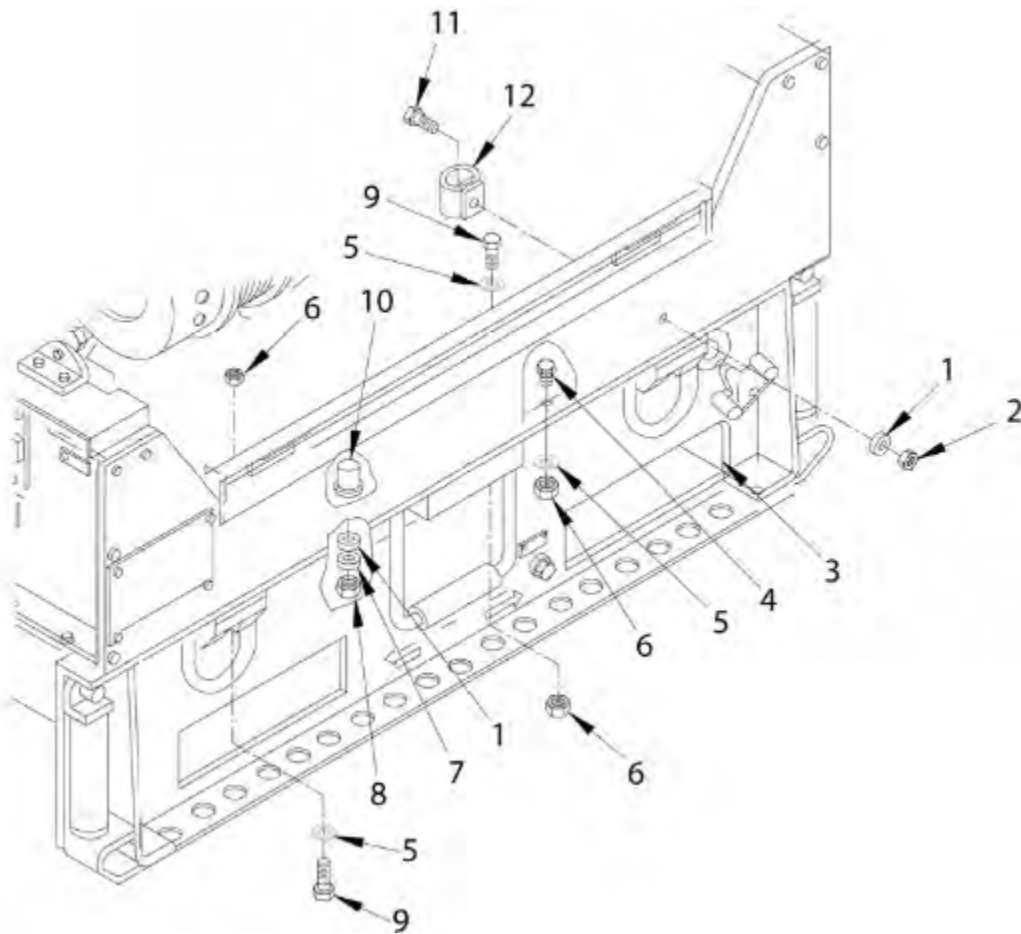


Figure 31. SKID BASE.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 0705 SKID BASE								
FIGURE 31 SKID BASE								
1	PAFZZ	PAOZZ	PAOZZ	5310-00-014-5850	96906	MS27183-42	. . WASHER,FLAT	2
2	PAFZZ	PAOZZ	PAOZZ	5310-00-208-9255	80205	MS21044C3	. . NUT,SELF-LOCKING,HEXAGON	1
3	PAFZZ	PAOZZ	PAOZZ		30554	98-19655	. . INSULATION,ACOUSTIC	1
4	XBFZZ	XBOZZ	XBOZZ	5305-01-056-1501	29215	274825	. . SCREW,CAP,HEXAGON HEAD	1
5	PAFZZ	PAOZZ	PAOZZ	5310-00-809-4058	96906	MS27183-10	. . WASHER,FLAT, CAD	3
6	PAFZZ	PAOZZ	PAOZZ	5310-00-685-2973	94135	12Z2007-260	. . NUT,SELF-LOCKING,HEX	3
7	PAFZZ	PAOZZ	PAOZZ	5320-00-932-1972	81349	M24243/6-A402H	. . RIVET,BLIND	2
8	PAFZZ	PAOZZ	PAOZZ	5940-01-476-9267	93742	98-19718-02	. . TERMINAL,STUD	1
9	PAFZZ	PAOZZ	PAOZZ	5305-01-476-9033	30554	88-20260-36	. . SCREW,CAP,HEXAGON H	8
10	XBFZZ	XBOZZ	XBOZZ		30554	98-19717	. . INSULATION	1
11	PAFZZ	PAOZZ	PAOZZ	5306-01-156-7663	19207	12325869	. . BOLT,MACHINE	1
12	PAFZZ	PAOZZ	PAOZZ	5340-01-476-9028	30554	98-19546	. . STRAP,WEBBING	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0706 ID PLATES

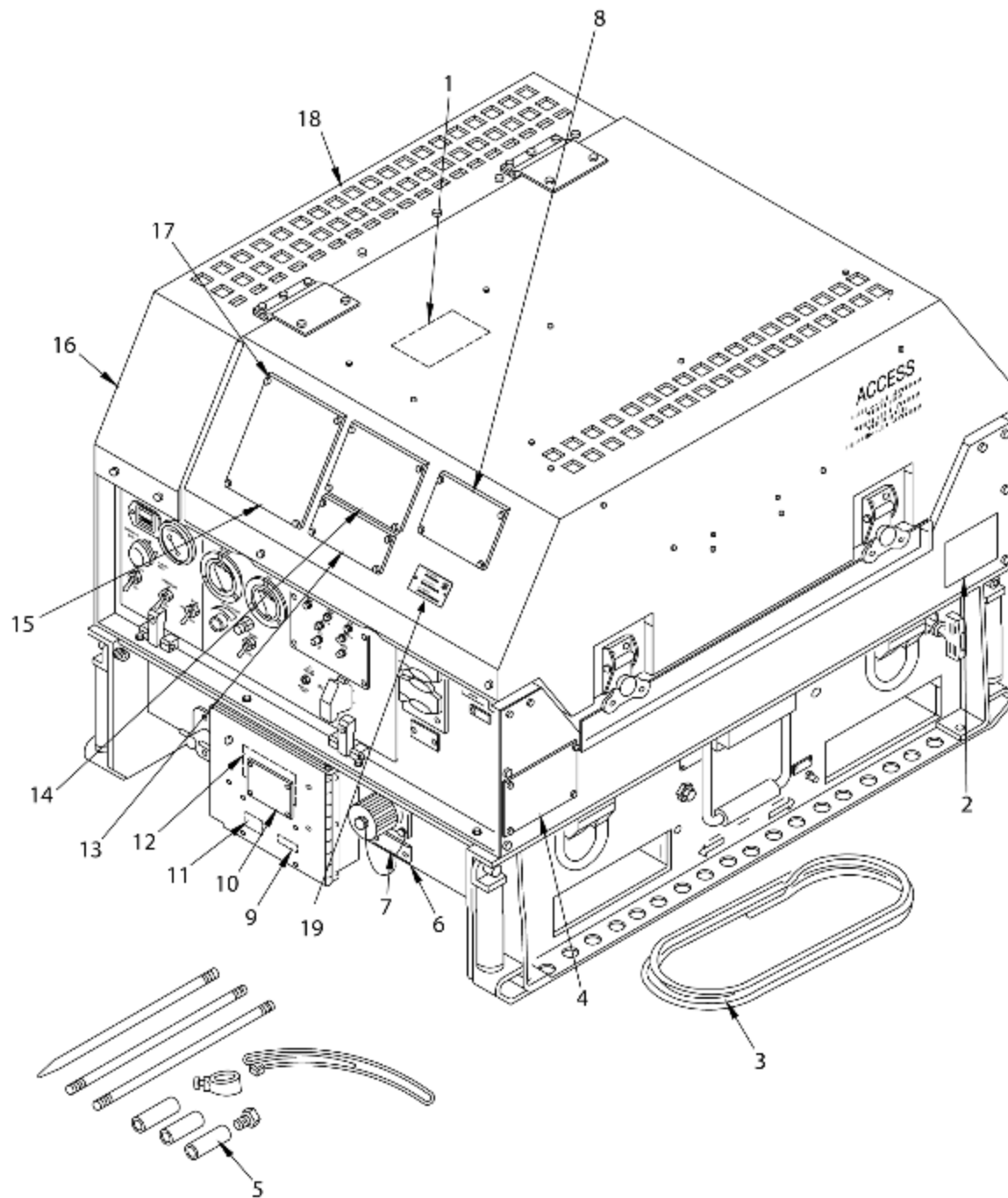


Figure 32. ID PLATES.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0706 ID PLATES								
FIGURE 32 ID PLATES								
1	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-11	. PLATE,IDENTIFICATION	1
2	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-23	. PLATE,IDENTIFICATION	1
3	PAFZZ	PAOZZ	PAOZZ	4720-00-021-3320	00624	FA1493FFF3000	. HOSE ASSEMBLY,NONMETALLIC	1
4	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-12	. PLATE,IDENTIFICATION	1
5	PAFZZ	PAOZZ	PAOZZ	5975-00-878-3791	58536	AA55804-3B 9FT	. ROD,GROUND	1
6	PAFZZ	PAOZZ	PAOZZ	5320-00-882-8388	81349	M24243/6A403H	. RIVET,BLIND	24
7	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-03	. PLATE,IDENTIFICATION	1
8	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-16	. PLATE,IDENTIFICATION UOC:LQR	1
8	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-17	. PLATE,IDENTIFICATION UOC:LQQ	1
9	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-05	. PLATE,IDENTIFICATION	1
10	XBFZZ	XBOZZ	XBOZZ		30554	98-19709-01	. . LABEL,CAUTION	1
11	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-20	. PLATE,IDENTIFICATION	1
12	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-25	. PLATE,IDENTIFICATION	1
13	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-09	. PLATE,CAUTION	1
14	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-21	. PLATE,IDENTIFICATION UOC:LQR	1
14	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-22	. PLATE,IDENTIFICATION UOC:LQQ	1
15	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-15	. PLATE,INSTRUCTION	1
16	XCFFF	XCOFF	XCOFF		30554	98-19504	. GENERATOR SET ASSEM, 400 Hz, UOC:LQQ	1
16	XCFFF	XCOFF	XCOFF		30554	98-19503	. GENERATOR SET ASSEM 60 Hz, UOC:LQR	1
17	PAFZZ	PAOZZ	PAOZZ	5320-00-932-1972	81349	M24243/6-A402H	. . RIVET,BLIND	34
18	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-07	. PLATE,IDENTIFICATION	1
19	XBFZZ	XBOZZ	XBOZZ		30554	88-22842-17	. PLATE, IDENTIFICATION, 60 Hz UOC: LQR	1
19	XBFZZ	XBOZZ	XBOZZ		30554	88-22842-18	. PLATE, IDENT, 400HZ UOC:LQQ	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0801 OIL DRAIN ASSEMBLY

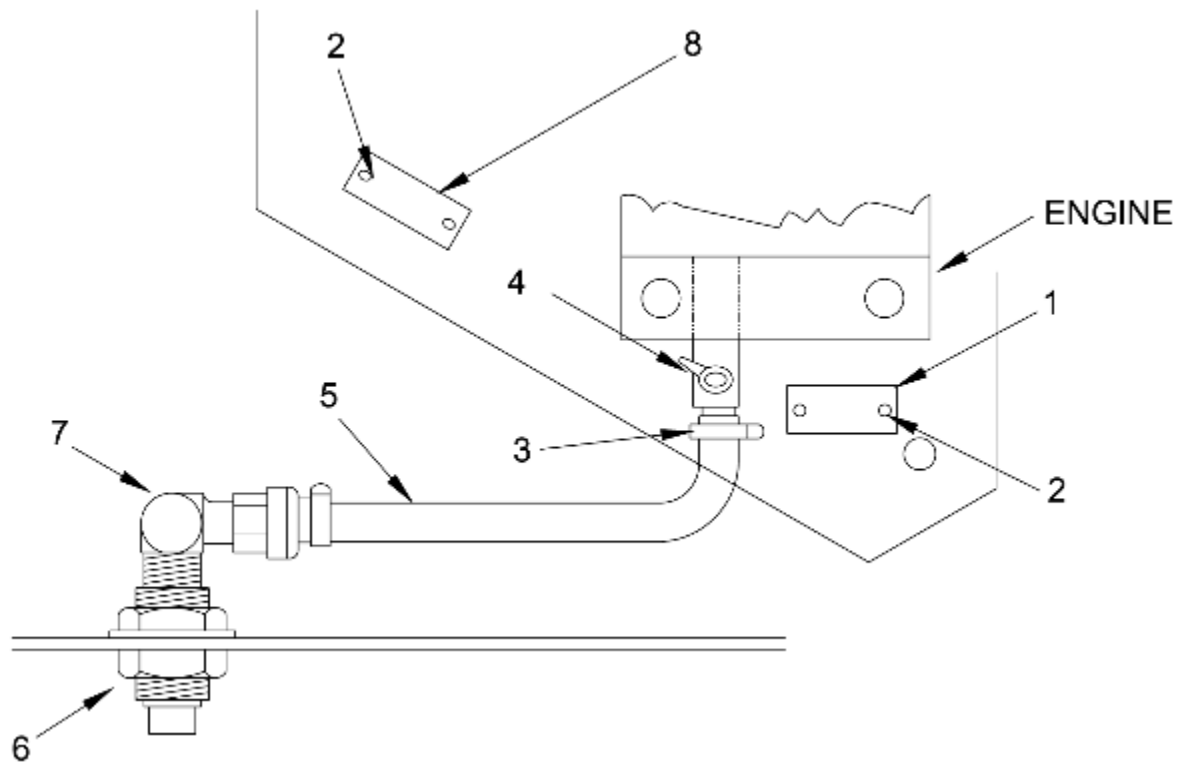


Figure 33. OIL DRAIN ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 0801 OIL DRAIN ASSEMBLY								
FIGURE 33 OIL DRAIN ASSEMBLY								
1	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-02	. . PLATE,IDENTIFICATION	1
2	PAFZZ	PAOZZ	PAOZZ	5320-00-882-8386	81349	M24243/6-A403H	. RIVET,BLIND	4
3	PAFZZ	PAOZZ	PAOZZ	4730-01-470-1626	30554	88-20561-1	. . CLAMP,HOSE	1
4	PAFZZ	PAOZZ	PAOZZ	4820-01-476-9731	19207	12511393	. . COCK,POPPET DRAIN	1
5	MFFZZ	MOOZZ	MOOZZ		30554	88-20579-5	. . HOSE,NONMETALLIC MAKE FROM P/ N 208-6 (98441), 11 INCHES	1
6	PAFZZ	PAOZZ	PAOZZ	4730-01-360-6217	01276	W17709	. . COUPLING,PIPE	1
7	XBFZZ	XBOZZ	XBOZZ		81343	6-6-430260C	. . FITTING, ELBOW	1
8	XBFZZ	XBOZZ	XBOZZ		30554	98-19586-24	. . PLATE,IDENTIFICATION	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0802 OIL PRESSURE SWITCH

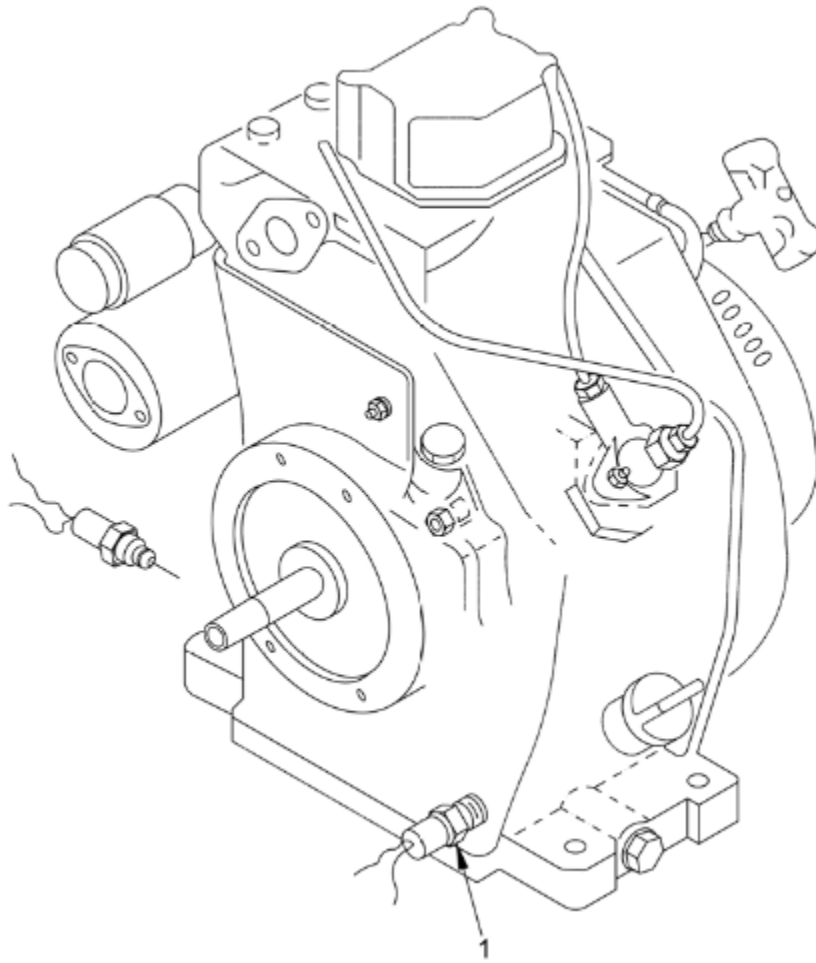


Figure 34. OIL PRESSURE SWITCH.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
1	PAFZZ	PAOZZ	PAOZZ	5930-01-478-0122	85814	SM-2B-15F	GROUP 0802 OIL PRESSURE SWITCH FIGURE 34 OIL PRESSURE SWITCH ... SWITCH, PRESSURE, OIL 1	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0803 ENGINE OIL TEMPERATURE SWITCH

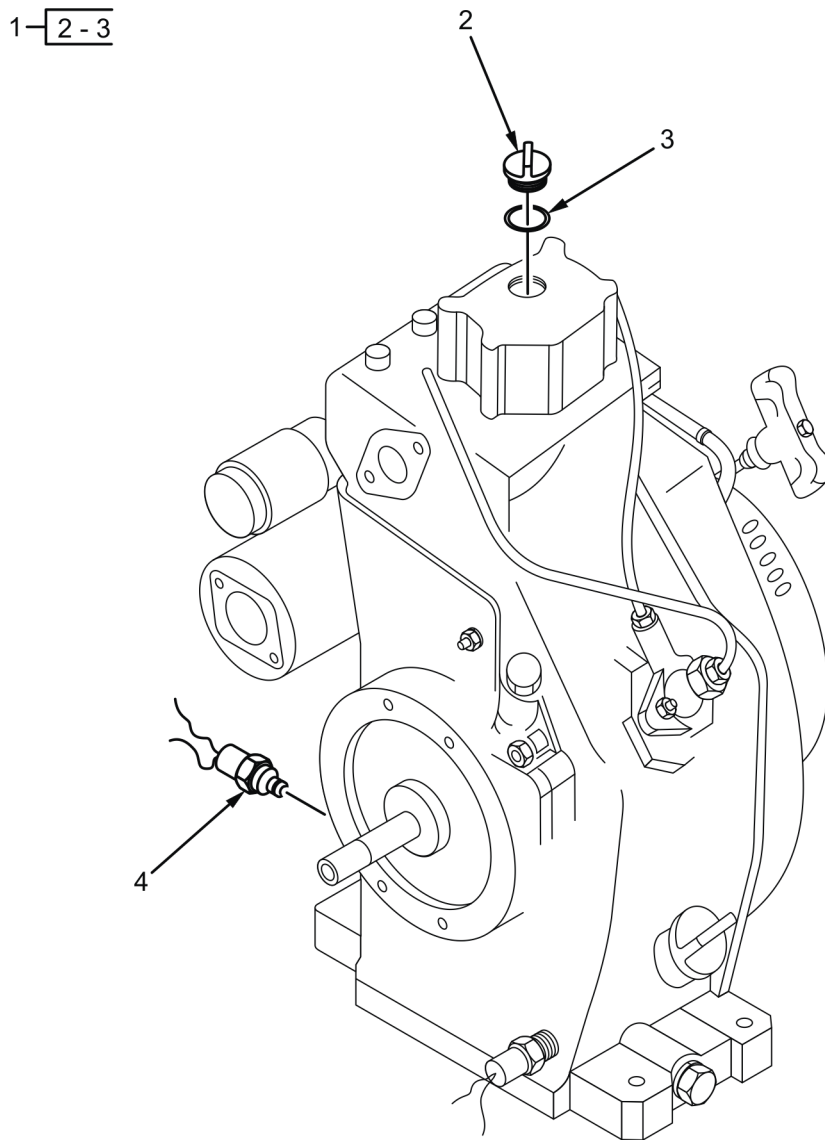


Figure 35. ENGINE OIL TEMPERATURE SWITCH.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
	SMR CODE							
	a.	b.	c.					
ITEM	AIR						DESCRIPTION AND	
NO.	ARMY	FORCE	USMC	NSN	CAGEC	PART NUMBER	USABLE ON CODE (UOC)	QTY
							GROUP 0803 ENGINE OIL TEMPERA- TURE SWITCH	
							FIGURE 35 ENGINE OIL TEMPERATURE SWITCH	
1	PAFZZ	PAOZZ	PAOZZ	2590-01-567-5873	30554	98-19762	. . OIL CAP ASSEMBLY	1
2	XBFZZ	XBOZZ	XBOZZ		30554	98-19760	. . . OIL CAP	1
3	XBFZZ	XBOZZ	XBOZZ		30554	98-19761	. . . O-RING, OIL CAP	1
4	PAFZZ	PAOZZ	PAOZZ	5930-01-477-9743	30554	98-19720	. . SWITCH,THERMOSTATIC	1
							END OF FIGURE	

OPERATOR AND FIELD MAINTENANCE
GROUP 0804 OIL FILTER

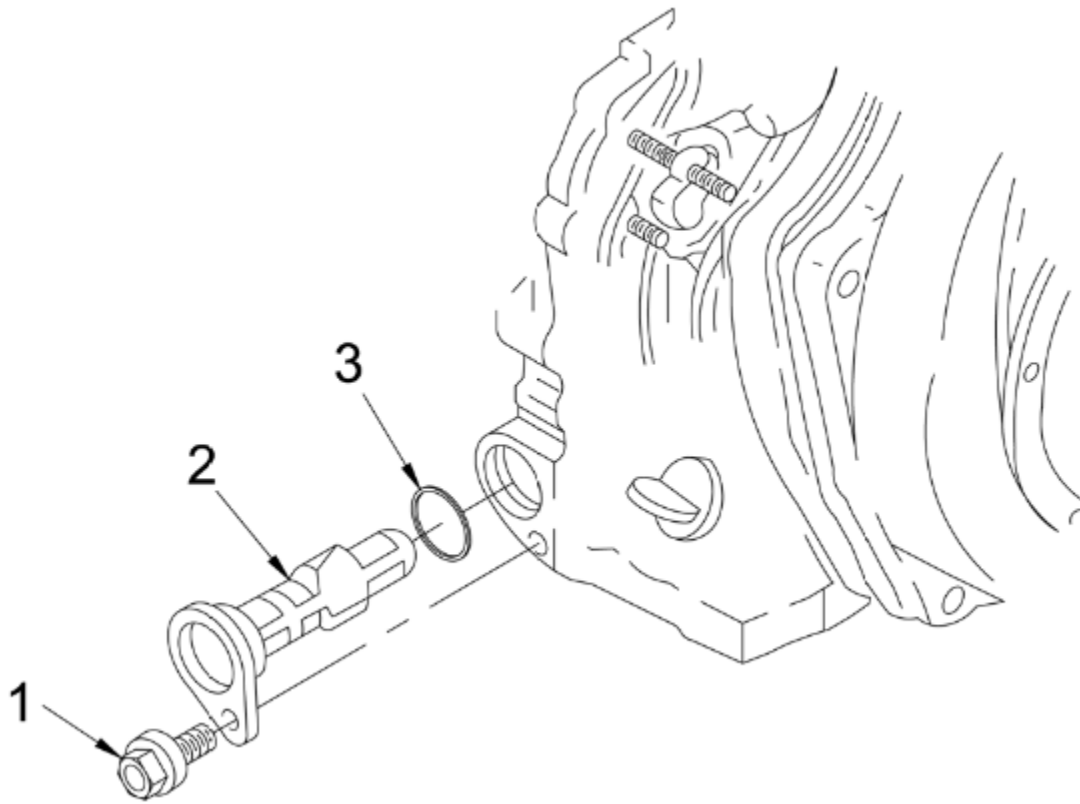


Figure 36. OIL FILTER.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
							GROUP 0804 OIL FILTER	
							FIGURE 36 OIL FILTER	
1	PAFZZ	PAOZZ	PAOZZ	5305-01-388-6229	0AK42	26106-060162	. . SCREW,CAP,HEXAGON H	1
2	PAFZZ	PAOZZ	PAOZZ	2940-01-545-0012	0AK42	114250-35070	. . STRAINER,OIL PUMP	1
3	PAFZZ	PAOZZ	PAOZZ	5331-01-326-8017	0AK42	24341-000224	. . O-RING	1
							END OF FIGURE	

OPERATOR AND FIELD MAINTENANCE
GROUP 0901 MUFFLER ASSEMBLY

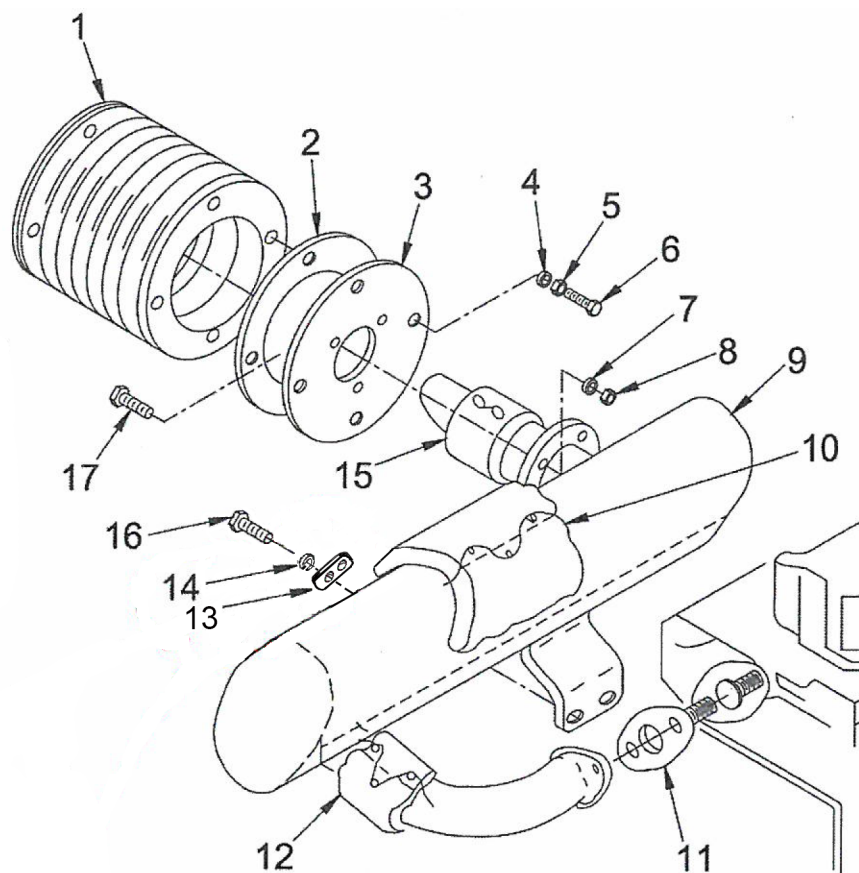


Figure 37. MUFFLER ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a.	b.	c.					
	ARMY	AIR FORCE	USMC					
GROUP 0901 MUFFLER ASSEMBLY FIGURE 37 MUFFLER ASSEMBLY								
1	PAFZZ	PAOZZ	PAOZZ	4720-01-476-9875	30554	98-19585	. . HOSE, NONMETALLIC	1
2	PAFZZ	PAOZZ	PAOZZ	5330-01-476-9137	30554	98-19614	. . GASKET	1
3	XBFZZ	XBOZZ	XBOZZ		30554	98-19711	. . SPACER	1
4	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8546	96906	MS27183-8	. . WASHER, FLAT	4
5	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER, LOCK, CADMIUM	4
6	PAFZZ	PAOZZ	PAOZZ	5305-00-004-3164	80204	B1821BH044C475N	. . SCREW, CAP, HEXAGON	4
7	PAFZZ	PAOZZ	PAOZZ	5310-00-809-8544	96906	MS27183-7	. . WASHER, FLAT #8	3
8	PAFZZ	PAOZZ	PAOZZ	5310-00-982-6814	80205	MS21044C08	. . NUT, SELF-LOCKING #8	3
9	PAFZZ	PAOZZ	PAOZZ	2990-01-477-2195	93742	98-19607	. . MUFFLER, EXHAUST	1
10	PAFZZ	PAOZZ	PAOZZ	2540-01-478-3630	61277	98-19545-01	. . INSULATION, THERMAL	1
11	XBFZZ	XBOZZ	XBOZZ		S4163	114250-13201	. . GASKET, EXHAUST	10
12	PAFZZ	PAOZZ	PAOZZ	2540-01-477-4776	61277	98-19545-02	. . INSULATION, THERMAL	1
13	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9081	30554	88-20033-19A	. . PLATE, WASHER	1
14	PAFZZ	PAOZZ	PAOZZ	5310-01-476-9079	30554	98-19664-03	. . WASHER, LOCK	2
15	PAFZZ	PAOZZ	PAOZZ	2540-01-477-4775	30554	98-19545-03	. . INSULATION, THERMAL	1
16	PAFZZ	PAOZZ	PAOZZ	5306-01-625-1002	30554	98-19764	. . BOLT, FATIGUE RESISTANT	2
17	PAFZZ	PAOZZ	PAOZZ	5305-00-068-0508	80204	B1821BH025C075N	. . SCREW, CAP, HEXAGON H	3
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0902 BELLOWS ASSEMBLY

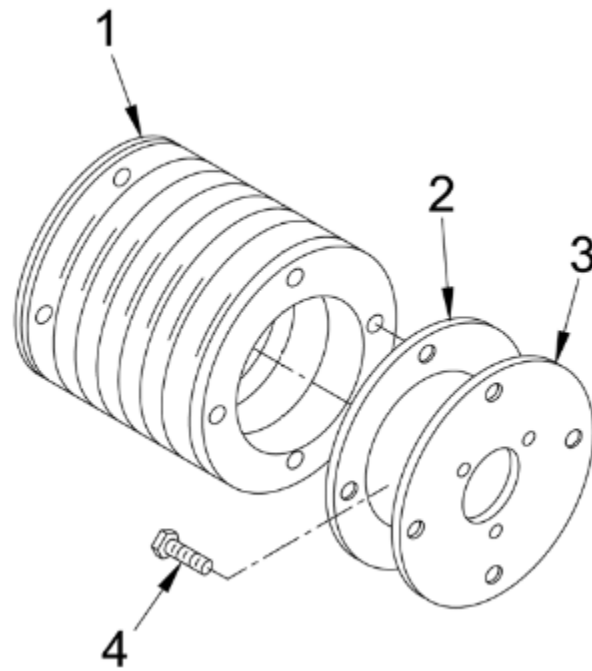


Figure 38. BELLOWS ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
a.		b.		c.				
ITEM NO.	ARMY	AIR FORCE	USMC	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 0902 BELLOWS ASSEMBLY								
FIGURE 38 BELLOWS ASSEMBLY								
1	PAFZZ	PAOZZ	PAOZZ	4720-01-476-9875	30554	98-19585	. . HOSE,NONMETALLIC	1
2	PAFZZ	PAOZZ	PAOZZ	5330-01-476-9137	30554	98-19614	. . GASKET	1
3	XBFZZ	XBOZZ	XBOZZ		30554	98-19711	. . SPACER	1
4	PAFZZ	PAOZZ	PAOZZ	5305-00-068-0508	07482	1C817P63	. . SCREW,CAP,HEXAGON H	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 0903 DUCT ASSEMBLY

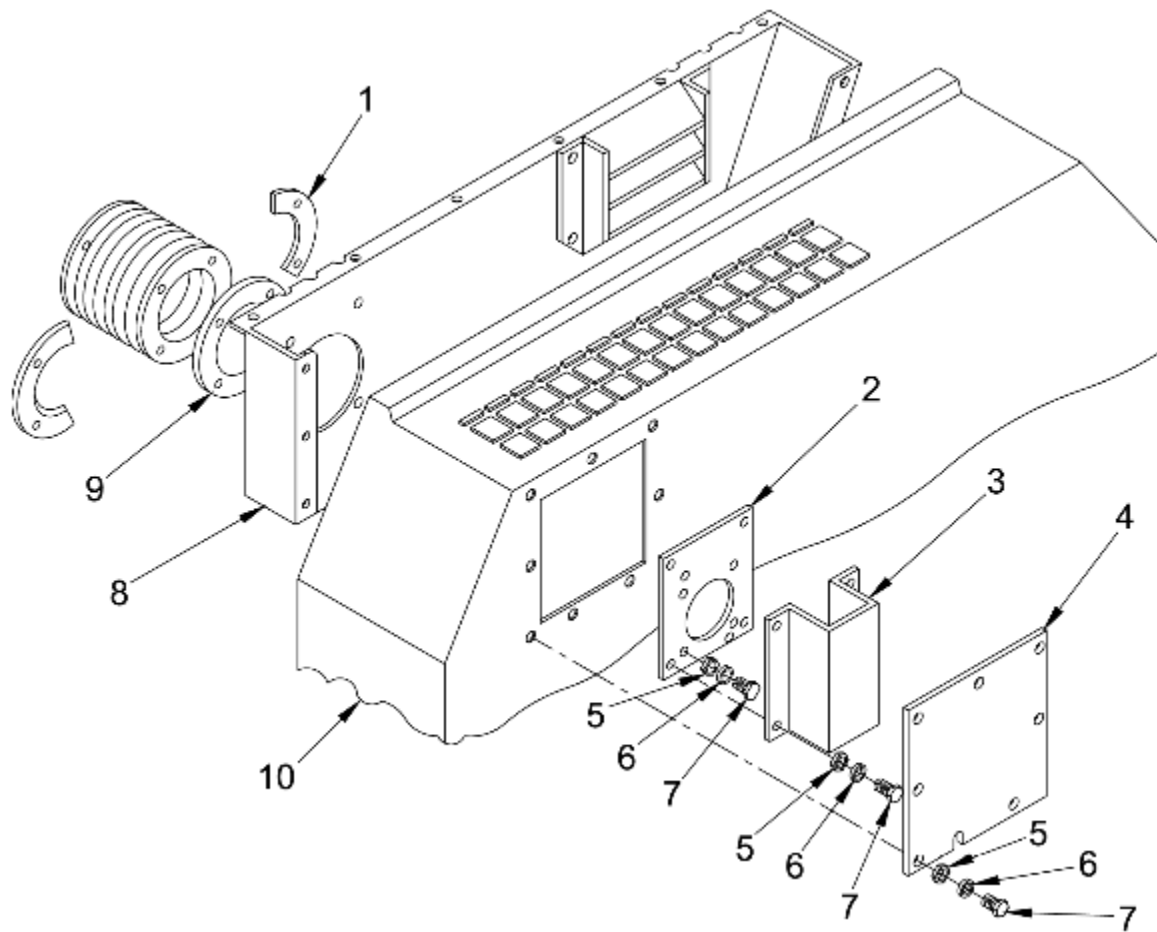


Figure 39. DUCT ASSEMBLY.

(1)	(2)			(3)	(4)	(5)	(6)	(7)
ITEM NO.	SMR CODE			NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	a. ARMY	b. AIR FORCE	c. USMC					
GROUP 0903 DUCT ASSEMBLY								
FIGURE 39 DUCT ASSEMBLY								
1	XBFZZ	XBOZZ	XBOZZ		30554	98-19737	. . FLANGE,EXHAUST	1
2	XBFZZ	XBOZZ	XBOZZ		30554	98-19738	. . PLATE,MOUNTING	1
3	XBFZZ	XBOZZ	XBOZZ		30554	98-19574	. . PANEL,DEFLECTOR	1
4	XBFZZ	XBOZZ	XBOZZ		30554	98-19739	. . PLATE,ACCESS	10
5	PAFZZ	PAOZZ	PAOZZ	5310-00-014-5850	96906	MS27183-42	. . WASHER,FLAT	15
6	PAFZZ	PAOZZ	PAOZZ	5310-00-045-4007	80205	MS35338-41	. . WASHER,LOCK	15
7	PAFZZ	PAOZZ	PAOZZ	5305-01-378-7899	30554	88-20260-22	. . SCREW,CAP,HEXAGON H	15
8	XBFZZ	XBOZZ	XBOZZ		30554	98-19573	. . PANEL,AIR OUTLET	1
9	PAFZZ	PAOZZ	PAOZZ	5330-01-476-9069	30554	98-19712	. . GASKET	1
10	PAFZZ	PAOZZ	PAOZZ	5342-01-198-7569	30554	98-19516	. . CAP, FILLER OPENING	1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE
GROUP 98 BULK MATERIAL

(1)	(2)			(3)	(4)	(5)	(6)	(7)
SMR CODE								
	a.	b.	c.					
ITEM	AIR						DESCRIPTION AND	
NO.	ARMY	FORCE	USMC	NSN	CAGEC	PART NUMBER	USABLE ON CODE (UOC)	QTY
GROUP 98 BULK MATERIALS								
FIG. BULK								
PAFZZ	PAFZZ	PAFZZ	4720-01-470-3929	98411	208-4	HOSE,NONMETALLIC		1
PAFZZ	PAFZZ	PAFZZ	4720-01-470-6320	98411	208-5	HOSE,NONMETALLIC		1
PAFZZ	PAFZZ	PAFZZ	5310-00-676-8099	98411	208-6	HOSE,NONMETALLIC		1
END OF FIGURE								

OPERATOR AND FIELD MAINTENANCE

NSN INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5305-00-004-3164	37	6		25	2
5310-00-014-5850	10	4	3040-00-374-5732	27	23
	16	1	5310-00-407-9566	16	10
	18	1		27	30
	24	20		28	23
	27	2		28	30
	28	2	5930-00-422-4948	9	18
	31	1	4730-00-432-2860	23	10
	39	5	5905-00-468-5869	13	20
4720-00-021-3320	32	3	5935-00-482-7721	21	8
5305-00-036-6968	28	32	5306-00-484-5730	11	3
	9	13		19	4
5305-00-036-6972	14	15		25	17
5305-00-036-6976	14	16		28	15
5305-00-038-3103	13	9	5961-00-484-8041	13	15
5310-00-045-3296	13	3	5905-00-539-2573	15	3
5310-00-045-4007	10	3	5310-00-543-2410	10	5
	20	4		19	5
	21	3		27	20
	22	3	5940-00-557-4343	8	3
	23	14	5355-00-559-8943	15	12
	27	16	5310-00-582-5965	17	5
	28	9	6210-00-583-9349	15	21
	37	5	4730-00-595-1887	24	3
	39	6		25	3
5306-00-050-1238	5	9	5310-00-676-8099		
5310-00-050-6646	1	12	5930-00-683-1626	15	13
6680-00-052-3544	15	2	5930-00-683-1628	15	14
5305-00-068-0508	37	17	5310-00-685-2973	11	8
	38	4		25	15
4730-00-073-2151	19	11		27	10
5310-00-081-4219	1	10		28	10
	30	3		29	13
	5	11		31	6
5925-00-089-3031	15	23	5310-00-809-4058	10	2
5940-00-107-1481	10	17		11	7
5975-00-111-3208	11	2		19	6
5920-00-131-9915	13	8		25	16
5310-00-208-9255	15	5		27	8
	24	12		28	8
	27	1		29	8
	28	1		31	5
	29	11	5310-00-809-8544	16	6
	30	4		27	31
	31	2		28	22
	9	8		28	29
5305-00-224-1092	13	19		37	7
5940-00-234-3383	30	10	5310-00-809-8546	10	21
4030-00-270-5436	1	24		15	4
	18	6		20	3
4730-00-277-7904	23	6		21	2
	24	2		22	4

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-00-809-8546 – continued					
	23	13	4030-01-114-3894	10	18
	29	7	5306-01-156-7663	10	25
	30	5		16	7
	37	4		24	21
	9	7		27	12
4730-00-812-1333	1	19		28	12
	24	22		31	11
4730-00-817-6194	24	4	5961-01-172-5982	11	5
5310-00-822-8525	15	19		14	5
5340-00-843-7825	28	28	5305-01-187-5878	13	17
5310-00-850-6855	30	1		9	2
5945-00-855-7478	11	4	5342-01-198-7569	18	3
5975-00-878-3791	32	5		39	10
5975-00-879-7234	14	18	5975-01-199-9033	1	14
5320-00-882-8386	33	2	5305-01-201-8979	14	4
5320-00-882-8388	32	6	5325-01-237-2933	10	23
5310-00-889-2589	27	21	5310-01-243-9441	29	3
5305-00-889-2997	17	2	5305-01-247-6829	14	7
5310-00-903-8595	28	6	5360-01-260-0317	14	1
5930-00-906-3477	15	20	5310-01-280-5796	1	5
5970-00-915-9186	8	1		7	3
5340-00-929-1794	23	3	6115-01-285-3012	1	1
5320-00-932-1972	14	12	6115-01-287-2431	1	1
	31	7	5905-01-293-0175	10	22
	32	17	5305-01-300-6264	26	2
5310-00-951-4679	17	6	5325-01-301-7903	12	1
5310-00-982-6814	1	25	5305-01-303-5631	1	7
	10	20	5310-01-306-1624	29	4
	16	5	2940-01-310-4495	26	6
	18	7	5325-01-320-8193	15	15
	37	8	5310-01-322-8747	26	4
5310-00-983-8483	28	33	5340-01-323-7879	26	5
	9	12	5331-01-326-8017	36	3
5310-00-984-3806	1	16	5310-01-327-0778	26	3
5305-00-984-6210	20	5	5305-01-335-7410	15	25
	21	4	4730-01-360-6217	33	6
	22	5	5310-01-365-4381	15	18
	23	12	5305-01-365-6313	27	4
5305-00-984-6218	19	16		29	6
5305-00-989-7435	15	11	2940-01-365-6535	23	4
5305-00-993-1848	30	11		24	14
5305-00-993-2738	27	19	5330-01-366-2836	20	1
5310-00-997-1888	19	15	5310-01-366-4412	29	5
	7	2	5310-01-366-8134	28	13
5310-01-012-3595	4	5	5330-01-367-6329	27	6
4730-01-020-5607	19	10	5935-01-367-7814	14	14
	24	23	5930-01-368-2891	15	8
6145-01-029-6544	8	4	5930-01-368-2893	15	22
5935-01-053-1955	21	7	5940-01-369-2270	11	6
5305-01-056-1501	10	1	5330-01-373-3649	25	8
	27	7	4330-01-374-9147	25	7
	28	7	5305-01-378-7899	10	6
	31	4		18	2
5310-01-056-1501	29	9		27	24
5940-01-057-3305	13	12		28	24
5935-01-097-9974	30	7		39	7
4730-01-102-6544	24	11		6	2

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5305-01-378-7899 – continued					
	9	17	5940-01-476-8951	8	5
5305-01-380-3395	1	4	5940-01-476-8981	8	7
5305-01-381-1202	1	28	5340-01-476-9004	23	5
5305-01-381-9970	25	22		9	5
5310-01-387-2150	1	6	5340-01-476-9006	28	27
5305-01-388-6229	36	1	5340-01-476-9028	31	12
2940-01-389-9942	26	1	5340-01-476-9030	27	34
5365-01-395-4744	25	11	5305-01-476-9033	31	9
5310-01-399-2044	24	10	6150-01-476-9059	7	9
7730-01-407-0649	24	9	6150-01-476-9061	7	6
5935-01-415-6239	5	2	4140-01-476-9063	16	4
5961-01-421-3024	13	18	4140-01-476-9068	16	12
5940-01-425-2020	13	13	5330-01-476-9069	39	9
	5	4	5340-01-476-9071	27	5
5305-01-428-6791	25	6	4020-01-476-9072	12	3
5930-01-436-4959	17	3	5340-01-476-9074	12	5
6645-01-458-7278	15	1	5940-01-476-9076	7	5
5945-01-461-2084	14	3	5305-01-476-9077	29	1
4730-01-463-2091	24	5	5310-01-476-9079	37	14
	25	24	5310-01-476-9081	37	13
5305-01-464-6667	10	24	5315-01-476-9086	19	2
	30	9	5305-01-476-9095	1	13
5340-01-464-8407	27	26	5305-01-476-9099	1	9
2815-01-465-5993	2	1	4730-01-476-9101	19	13
5305-01-467-1561	14	17		25	18
4730-01-470-1423	24	17	5310-01-476-9103	5	8
3305-01-470-1425	16	11	5330-01-476-9106	27	27
5305-01-470-1425	27	29		27	32
	28	21		28	17
	28	31	5330-01-476-9137	37	2
4730-01-470-1626	19	9		38	2
	23	2	5330-01-476-9140	21	1
	24	1		22	1
	25	1	5340-01-476-9144	19	1
	33	3	5340-01-476-9147	19	3
5940-01-470-2470	13	10	6130-01-476-9148	6	1
5940-01-470-3031	13	11	5940-01-476-9186	13	14
4720-01-470-3929	19	12	5940-01-476-9191	13	2
	20	16	5310-01-476-9196	4	11
	23	7	5310-01-476-9198	4	7
	23	8	5310-01-476-9200	4	12
	24	24	5310-01-476-9201	4	13
	25	19	5310-01-476-9203	4	16
	25	21	5310-01-476-9206	4	9
	25	23	5310-01-476-9213	4	17
5305-01-470-6197	16	2	5305-01-476-9223	4	19
4720-01-470-6230	23	1	4730-01-476-9224	25	26
	24	13	5310-01-476-9228	4	15
	25	20	5305-01-476-9231	4	2
4720-01-470-6320			5940-01-476-9267	31	8
5970-01-471-3258	8	6	5940-01-476-9272	27	15
4820-01-474-6910	25	10	6150-01-476-9315	16	9
6115-01-476-8607	1	1	6150-01-476-9335	11	1
6150-01-476-8666	30	6	6150-01-476-9338	10	7
6150-01-476-8673	30	8		17	4
5340-01-476-8683	13	4		28	26
6140-01-476-8945	7	8	6680-01-476-9362	20	2

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
4820-01-476-9731	33	4	5930-01-478-0122	34	1
5920-01-476-9734	13	7		5	7
2910-01-476-9751	4	10	6150-01-478-1124	16	8
4730-01-476-9775	19	8	5925-01-478-2040	14	10
	24	8	2540-01-478-3630	37	10
2910-01-476-9779	21	5	4710-01-478-3637	22	2
4720-01-476-9814	1	2	5120-01-483-3706	10	14
4730-01-476-9855	18	4	4010-01-497-2675	1	3
4720-01-476-9875	37	1	5999-01-502-6278	9	10
	38	1	4140-01-503-3160	16	12
4730-01-476-9921	24	6	2910-01-506-3912	25	9
	25	13	6110-01-507-7938	9	4
5340-01-477-0133	9	9	5945-01-509-9898	14	2
5305-01-477-0236	5	10	6625-01-515-2404	15	7
5999-01-477-0593	5	3	2910-01-517-8606	23	15
5920-01-477-0598	16	3		24	15
5930-01-477-0617	17	1	6160-01-519-0139	7	4
6625-01-477-0634	15	10	5306-01-519-1696	7	1
6625-01-477-0732	15	6	7690-01-531-3589	10	12
2910-01-477-0840	25	4	5305-01-531-5580	1	18
5895-01-477-0855	10	9	5310-01-531-5950	15	26
5895-01-477-0858	10	9	4720-01-531-7274	25	27
6150-01-477-1173	10	7	5310-01-531-7609	15	27
	11	1	5306-01-533-1812	7	7
	17	4	5310-01-533-6741	1	17
	23	11	2940-01-545-0012	36	2
	28	26	4730-01-553-7181	24	18
6110-01-477-1175	9	4	6115-01-553-8439	10	19
6150-01-477-1176	9	6	2910-01-557-2674	19	17
6150-01-477-1177	9	6	2590-01-567-5873	35	1
5940-01-477-1254	13	5	4730-01-571-1767	23	9
2920-01-477-1320	1	26	5970-01-593-8463	8	2
	4	1	6130-01-610-6102	7	8
5310-01-477-1368	9	3	6210-01-620-1824	15	24
2990-01-477-1371	14	8	5306-01-625-1002	37	16
	3	1	4730-01-641-0009	25	28
5340-01-477-1375	1	11	2910-01-650-6533	24	15
2990-01-477-2195	37	9	2815-01-660-5994	2	2
3120-01-477-2736	4	6	5310-12-125-0056	1	27
5365-01-477-2738	27	17		5	12
4820-01-477-2791	19	14	5305-12-163-0919	28	16
2540-01-477-4775	37	15			
2540-01-477-4776	37	12			
5305-01-477-9613	1	21			
5305-01-477-9615	4	3			
5305-01-477-9616	4	8			
5310-01-477-9621	30	2			
5330-01-477-9623	12	2			
	27	28			
5340-01-477-9625	27	36			
5310-01-477-9626	1	22			
5930-01-477-9743	35	4			
	5	6			
5915-01-477-9756	30	13			
5935-01-477-9883	14	6			
6110-01-478-0097	27	18			
5930-01-478-0101	15	17			

END OF WORK PACKAGE

OPERATOR AND FIELD MAINTENANCE

P/N INDEX

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
208-6			208-5	23	1
00-24002-2	24	15		24	13
03-09-2022	21	8		25	20
0412TEEN	25	26	21NTE616	29	5
04306-0153	13	19	24341-000224	36	3
1055-U3	12	5	26.6002	15	7
11-504	9	18	26106-060162	36	1
1115615	11	4	2740-0003	4	5
114250-12520	26	5	274825	10	1
114250-12530	26	1		27	7
114250-12550	26	3		28	7
114250-12560	26	4		29	9
114250-12581	26	6		31	4
114250-13201	37	11	29340	10	9
114250-35070	36	2	29350	10	9
11674728	30	7	29390	15	10
120456	27	23	29410	14	10
12325869	10	25	29440	30	13
	16	7	30554	15	2
	24	21	307608	11	3
	27	12		19	4
	28	12		25	17
	31	11		28	15
12485434-074	26	2	3300-10-XP-74	13	11
125 HB-2-2	25	24	3300-16	13	14
12511393	33	4	3300-16-XP-74	13	16
125HB-2-2	24	5	3300-2	13	10
125HBL-5-2	23	6	3300-3	13	5
	24	2	3300-3-XP-74	13	6
	25	2	3300-9	13	2
12Z2007-260	11	8	3300-9-XP-74	13	1
	25	15	33583	25	7
	27	10	342028, 905-023, 901-124	13	7
	28	10	344636-8RED	8	1
	29	13	39-00-0077	5	3
	31	6	39-01-2060	5	2
13214E3290-18	28	32	4-4-430260C	19	13
	9	13		25	18
13214E3290-21	14	16	409320-001	1	11
13229E4181-1	21	7	4119NX0108E05	12	2
186	1	2		27	28
19740	30	12	43LC6-12-SS-R	23	5
1C817P63	38	4		9	5
1N5404	13	15	43LC6-8-SZ-R	28	27
205-605	24	9	4797-5-4B	19	11
208-4	19	12	5324K81	24	6
	20	16		25	13
	23	7	559262	16	4
	23	8	5601856	10	12
	24	24	5HE25100-101	25	23
	25	19	6-6-430260C	33	7
	25	21	61-060841-40-0142B0542B	14	15

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
61-081441-40-C1428-0542B	14	7	90081A108	1	21
61-101041-90-0142B-0542B	13	17	90298A709	29	1
	9	2	92161A033	29	3
628-20978	15	6	93-350816-2	5	5
69-539-2	1	19	95-8125-2	15	27
	24	22	98-19503	1	1
69-662-24	14	4		32	16
69-662-35	13	9	98-19504	1	1
69-692-6	30	10		32	16
85-12-500-16	15	15	98-19505	27	14
85-35-309-56	12	1	98-19508	27	18
85-46-103-39	15	18	98-19509	12	6
85311	15	1		27	18
88-20033-19A	37	13	98-19512-02	16	12
88-20033-4A	1	22	98-19515	18	4
88-20033-6A	15	26	98-19516	18	3
88-20033-8	9	3		39	10
88-20033-8A	1	17	98-19518-01	8	5
88-20260-11	16	11	98-19518-02	8	7
	27	29	98-19519	21	9
	28	21	98-19535	25	4
	28	31	98-19537	5	7
88-20260-13	1	18	98-19544	24	18
88-20260-22	10	6	98-19545-01	37	10
	18	2	98-19545-02	37	12
	27	24	98-19545-03	37	15
	28	24	98-19546	31	12
	39	7	98-19548	27	22
	6	2		27	33
	9	17	98-19549	10	11
88-20260-23	27	4	98-19553	15	16
	29	6	98-19555	29	12
88-20260-34	25	22	98-19556	29	10
88-20260-36	31	9	98-19557	19	17
88-20260-44	1	9	98-19558	7	10
88-20286	20	1	98-19560	27	11
88-20476	21	6	98-19561	27	38
88-20541-16	8	2	98-19562	1	15
88-20549-1	15	9	98-19563	1	8
88-20556-6	30	2	98-19564	28	11
88-20561-1	19	9		28	14
	23	2	98-19565	28	38
	24	1	98-19566	7	4
	25	1	98-19567-01	7	1
	33	3	98-19567-02	7	7
88-20561-5	24	17	98-19568	10	19
88-20579-5	33	5	98-19570	10	8
88-22705	27	6		28	19
88-22791-2	14	17	98-19573	28	3
88-22793-4	10	24		39	8
	30	9	98-19574	39	3
88-22842-17	32	19	98-19575	27	5
88-22842-18	32	19	98-19576-01	27	3
8906K4519	15	22	98-19576-02	27	9
8906K4533	15	8	98-19577	27	40
8925T5	1	3	98-19578	27	13
8936T43	10	16	98-19581-01	28	18

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
98-19581-02	28	4	98-19662	5	8
98-19583	12	4	98-19664-03	37	14
98-19584	27	39	98-19699	7	5
	28	25	98-19701	27	17
98-19585	37	1	98-19702	19	3
	38	1	98-19703	19	2
98-19586-02	33	1	98-19709-01	28	34
98-19586-03	32	7		32	10
98-19586-04	14	13	98-19709-02	28	36
98-19586-05	32	9		9	11
98-19586-07	32	18	98-19710	14	9
98-19586-08	14	11	98-19711	37	3
98-19586-09	32	13		38	3
98-19586-11	32	1	98-19712	39	9
98-19586-12	32	4	98-19714-01	16	8
98-19586-15	32	15	98-19714-02	16	9
98-19586-16	32	8	98-19715	6	1
98-19586-17	32	8	98-19717	31	10
98-19586-20	32	11	98-19718-01	27	15
98-19586-21	32	14	98-19718-02	31	8
98-19586-22	32	14	98-19719	9	1
98-19586-23	32	2	98-19720	35	4
98-19586-24	33	8		5	6
98-19586-25	32	12	98-19722	21	5
98-19592	9	6	98-19724	12	3
98-19593	7	6	98-19725-01	28	35
98-19594	7	9	98-19725-02	28	37
98-19595	30	8	98-19726	9	10
98-19596	30	6	98-19727	27	34
98-19597	9	6	98-19728	13	4
98-19598	25	12	98-19729	10	7
98-19599	10	14		11	1
98-19603	27	35		17	4
	27	37		23	11
98-19607	37	9		28	26
98-19608	24	19	98-19730	5	10
	28	5	98-19734	16	3
98-19609	22	2	98-19735	27	36
98-19610	21	1	98-19736-01	24	7
	22	1		25	14
98-19611	19	7	98-19736-02	25	25
98-19613	19	1	98-19736-03	25	27
98-19614	37	2	98-19737	39	1
	38	2	98-19738	39	2
98-19615	29	2	98-19739	39	4
98-19618	10	10	98-19744-03	23	9
98-19621	27	25	98-19747	1	23
98-19623	28	20	98-19749	23	15
98-19633	10	7		24	15
	11	1	98-19760	35	2
	17	4	98-19761	35	3
	28	26	98-19762	35	1
98-19634	1	1	98-19763	15	24
98-19645-03-201	27	27	98-19764	37	16
	27	32	98-19766	7	8
	28	17	98-19769	25	28
98-19655	31	3	98-831A	1	1

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
98-832A	1	1	LS4082	20	2
A733XS-10CFB	24	4	M24243/6-A402H	14	12
AA-8715-10	11	6		31	7
AA55804-3B 9FT	32	5		32	17
ABB-100	1	14	M24243/6-A403H	33	2
ADG150	1	26	M24243/6A403H	32	6
	4	1	M45913/1-5CG5C	1	16
AES07M08B020CH1A81	1	7	MS14226-64YC816	24	10
AES07M08B025CG7A81	1	28	MS17830-6C	1	12
ASME B18.6.3	20	5	MS20659-104	10	17
	23	12	MS21044C08	1	25
B1821BH025C075N	37	17		10	20
B1821BH031F075N	5	9		16	5
B1821BH037C175N	1	13		18	7
B1821BH044C475N	37	6		37	8
B18231B10025NF	1	4	MS21044C3	15	5
B2 1/2 BLACK	8	6		24	12
BR100	4	6		27	1
C7941-1032-3B	28	13		28	1
CA-110	17	1		29	11
CA-85	17	3		30	4
CR15	14	14		31	2
CT100D24C1S	9	4		9	8
D07931-1032-3B	28	6	MS21044C4	27	21
DIN127-B10-FST-B3B	1	6	MS21333-68	28	28
DIN127-B8-FST	1	27	MS21334-31	23	3
	5	12	MS24523-22	15	14
F02A32V20A	13	8	MS24523-30	15	13
FA1493FFF3000	32	3	MS25036-121	8	3
GBPC1204	13	18	MS25041-5	15	21
HBL5206WO	14	18	MS27183-10	10	2
HK799G16M	17	5		11	7
HW01-106	4	3		19	6
HW01-137	4	8		25	16
HW01-900	4	2		27	8
HW02-213	4	15		28	8
HW02-218	4	7		29	8
HW03-300	4	17		31	5
HW03-303	4	11	MS27183-12	1	10
HW198	4	19		30	3
HW1B-Y2C02-R	15	17		5	11
HW206	4	16	MS27183-3	17	6
HW309	4	9	MS27183-42	10	4
J1127-TYPE SGT-4AWG-B	8	4		16	1
LK				18	1
J514	24	3		24	20
JAD-5005	9	4		27	2
JANTX1N6056A	11	5		28	2
	14	5		31	1
JANTX1N6072A	13	12		39	5
JM54LC6SS8R	9	9	MS27183-5	28	33
K5-2857-52	27	26		9	12
L70AE-DEGFR	2	1	MS27183-57	1	5
L70N6EZ0T9EAFD	2	2		7	3
LE154	4	4	MS27183-58	29	4
LE157	4	20	MS27183-7	16	6
LK150	4	14		27	31

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
MS27183-7 – continued					
	28	22		5	4
	28	29	RD150	4	10
	37	7	RER70F2491R	13	20
MS27183-8	10	21	RG24-15A1	7	8
	15	4	RH2B-ULAC110-120V	14	2
	20	3	RH2B-ULDC24V	14	3
	21	2	RK 10110	25	6
	22	4	RK 20126	25	11
	23	13	RK10012	25	8
	29	7	RK10214	25	5
	30	5	RK10215	25	9
	37	4	RK30476	25	10
	9	7	RV4SAYS502A	15	3
MS27407-2	15	20	SAE J1231 4-2 431460C	24	11
MS3367-5-9	11	2	SAE J514 2-2-2 140438C	25	3
MS35206-215	17	2	SAE J514 4-4 070221	23	10
MS35206-263	21	4	SAE J514 5-5 070701C	19	8
	22	5		24	8
MS35206-271	19	16	SCW0632-5	9	15
MS35207-264	15	11	SEMS DIN7985-M4X10-A2-	16	2
MS35207-265	30	11	70-H		
MS35207-280	27	19		28	16
MS35338-40	10	5	SFSIZE1	18	5
	19	5	SGD00007A	9	14
	27	20	SH2B-05	14	6
MS35338-41	10	3	SJ-3542	10	23
	20	4	SJ3541 TYPE 400	10	15
	21	3	SLC100	14	8
	22	3		3	1
	23	14	SM-2B-15F	34	1
	27	16	SY4S-02F1	14	1
	28	9	TYPEII,GRADECL3	1	20
	37	5	W17709	33	6
	39	6	W23X1A1G7.5	15	23
MS35338-43	13	3	WA102	4	13
MS35338-45	16	10	WLK0006	9	16
	27	30	Z320PA40A	10	22
	28	23			
	28	30			
MS35649-2252	19	15	END OF WORK PACKAGE		
	7	2			
MS35691-12	30	1			
MS51492-02	15	25			
MS51844-23	10	18			
MS51860-54	19	10			
	24	23			
MS87006-3	1	24			
	18	6			
MS91528-2K2B	15	12			
MV608-4	19	14			
NT102	4	12			
OA172SAP-11-1TB-XC	16	12			
P50091	23	4			
	24	14			
PL152	4	18			
PMS25086-001-01	15	19			
PN18-6LF-C	13	13			

CHAPTER 8

OPERATOR AND FIELD SUPPORTING INFORMATION

REFERENCES

SCOPE

This work package lists all forms, field manuals, and technical manuals referenced in this manual or used in conjunction with the 3 kW Tactical Quiet Generator set.

FORMS

AFR 400-54	Reporting of Packaging Discrepancies
AFR 66-1	Maintenance Management of Aircraft
AFR 75-18	Reporting of Transportation Discrepancies
AFR 900-4	Equipment Improvement Report
AFTO 00-51	AF Technical Order System
AFTO Form 22	Technical Order System Publication Improvement Report and Reply
AR 55-38	Reporting of Transportation Discrepancies in Shipments
AR 735-11-2	Reporting of Supply Discrepancies
AR 750-1	Army Materiel Maintenance Policy
CTA 50-790	Expendable/Durable Items
CTA 8-100	Army Medical Department Expendable/Durable Items
DA Form 2028	Recommended Changes to Publications
DA Form 2028-2	Recommended Changes to Equipment Technical Manuals
DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 2408-9	Equipment Usage Report
DD Form 5988E	Equipment Maintenance and Inspection Worksheet
DLAR 4140.55	Reporting of Transportation Discrepancies in Shipment
DLAR 4500.15	Reporting of Supply Discrepancies
MCO 4430.0	Report of Item and Packaging Discrepancies
MCO 4430.3J	Report of Discrepancy (ROD)
MCO P4610.19	Transportation and Travel Record of Transportation Discrepancies
MCO P4610.19D	MCPDS Index of Technical Publications
MCO P4855.10	Product Quality Deficiency Report Manual
NAVMC 10772	Recommended Changes to Technical Publications
NAVSUPINST 4610.33C	Reporting of Transportation Discrepancies in Shipment
SECNAVINST 4355.18	Reporting of Supply Discrepancies
SF 361	Transportation Discrepancy Report
SF 364	Report of Discrepancy (ROD)
SF 368	Product Quality Deficiency Report (QDR)

FIELD MANUALS

FM 3-3	Chemical and Biological Contamination Avoidance
FM 3-4	NBC Protection
FM 3-5	NBC Decontamination
FM 4-25.11	First Aid for Soldiers
FM 5-424	Theater of Operations Electrical Systems

TECHNICAL BULLETINS

TB 5-4200-200-10	Hand Portable Fire Extinguishers Approved for Army Use
TB 703-1	Specification List of Standard Liquid Fuels, Lubricants, Preservatives, and Related Products Authorized for Use by U.S. Army
TB 740-97-2	Preservation of USAMECOM Mechanical Equipment for Shipment and Storage
TB MED 251	Noise and Conservation of Hearing

TECHNICAL MANUALS

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms
DA PAM 750-8	Functional Users Manual for The Army Maintenance Management System (TAMMS)
MIL-HDBK-263	Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
MIL-STD-1686	Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
MIL-STD-40051	Preparation of Digital Technical Information for Multi-Output Presentation of Technical Manuals
TM 38-250	Preparing Hazardous Materials for Military Air Shipments
TM 4700-15/1	Ground Equipment Record Procedures
TM 6115-658-13-P	Operator, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Power Plant, Diesel Engine Driven, 1-Ton Trailer Mounted (with Racks) 3 kW, 60 Hz, AN/MJQ-42 (NSN 6115-01-322-8583) Power Plant, Diesel Engine Driven, 1-Ton Trailer Mounted (without Racks) 3 kW, 60 Hz, AN/MJQ-43 (6115-01-322-8582)
TM 740-90-1	Administrative Storage of Equipment
TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use
TM 9-2815-257-24	Unit, Direct Support, and General Support Maintenance Manual for Diesel Engine Assembly Model L70AE-DEGFR (NSN 2815-01-465-5993) and L70N6EZ0T9EAFD (NSN 2815-01-660-5994) (EIC: N/A) (TO 38G1-128-2; TM 10155A/2815-24/3)
TM 9-2815-257-24P	Field and Sustainment Maintenance Manual for Diesel Engine Model L70AE-DEGFR (NSN 2815-01-465-5993) and L70N6EZ0T9EAFD (NSN 2815-01-660-5994) (EIC: N/A) (TO 38G1-128-4; TM 10155A/2815-24P/4)
TO 00-35D54	The USAF Material and Deficiency Reporting and Investigating System
TO 25-1-3	Repair Parts Kits Users Manual
TO 35-1-3	Corrosion Prevention, Painting, and Marking of USAF Support Equipment (SE)
TO 35-1-4	Processing and Inspection of Support Equipment for Storage and Shipment
UM 4400-123	Defense Transportation Regulations, Part II
UM 4400-124	Cargo Movement (DOD 4500.9-R)

MILITARY SPECIFICATIONS

MIL-B-22191	Barrier Materials, Transparent, Flexible, Heat Sealable
MIL-G-28554	Generator Sets, Mobile Electric Power; Packaging of
MIL-P-116	Preservation, Methods of

MISCELLANEOUS

AR 740-1	Storage and Supply Activity Operations
AR 746-5	Color and Marking of Army Material
SC 4910-95-A62	Sets, Kits, Outfits, and Tools, for Shop Equipment Automotive Maintenance and Repair: Field Maintenance, Supplemental No. 1, Less Power and Shop Equipment Automotive Maintenance and Repair: Field Maintenance, Supplemental No. 1
SC 4910-95-A74	Sets, Kits, and outfits Shop Equipment, Automotive Maintenance and Repair: Organizational Maintenance, Common No. 1
SC 5180-90-N26	Set, Kits, and Outfits Tool Kit for General Mechanics (GMTK): Automotive

END OF WORK PACKAGE

INTRODUCTION FOR STANDARD TWO-LEVEL MAC

MAINTENANCE ALLOCATION CHART (MAC)**INTRODUCTION****The Army Maintenance System MAC**

This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level Maintenance System concept.

This MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Field - includes two subcolumns, Crew (C) and Maintainer (F).

Sustainment - includes two subcolumns, Below Depot (H) and Depot (D).

The maintenance to be performed at field and sustainment levels is described as follows:

1. Crew maintenance. The responsibility of a using organization to perform maintenance on its assigned equipment. It normally consists of inspecting, servicing, lubricating, adjusting, and replacing parts, minor assemblies, and subassemblies. The replace function for this level of maintenance is indicated by the letter "C" in the third position of the SMR code. A "C" appearing in the fourth position of the SMR code indicates complete repair is possible at the crew maintenance level.
2. Maintainer maintenance. Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "F" appearing in the third position of the SMR code. An "F" appearing in the fourth position of the SMR code indicates complete repair is possible at the field maintenance level. Items are returned to the user after maintenance is performed at this level.
3. Below depot sustainment. Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "H" appearing in the third position of the SMR code. An "H" appearing in the fourth position of the SMR code indicates complete repair is possible at the below depot sustainment maintenance level. Items are returned to the supply system after maintenance is performed at this level.
4. Depot sustainment. Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "D" or "K" appearing in the third position of the SMR code. Depot sustainment maintenance can be performed by either depot personnel or contractor personnel. A "D" or "K" appearing in the fourth position of the SMR code indicates complete repair is possible at the depot sustainment maintenance level. Items are returned to the supply systems after maintenance is performed at this level.

The tools and test equipment requirements table (immediately following the MAC) lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks table (immediately following the tools and test equipment requirements) contains supplemental instructions and explanatory notes for a particular maintenance function.

Maintenance Functions

Maintenance functions are limited to and defined as follows:

MAINTENANCE ALLOCATION CHART (MAC) – CONTINUED

1. **Inspect.** To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gaugings and evaluation of cannon tubes.
2. **Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.
3. **Service.** Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms. The following are examples of service functions:
 - a. **Unpack.** To remove from packing box for service or when required for the performance of maintenance operations.
 - b. **Repack.** To return item to packing box after service and other maintenance operations.
 - c. **Clean.** To rid the item of contamination.
 - d. **Touch up.** To spot paint scratched or blistered surfaces.
 - e. **Mark.** To restore obliterated identification.
4. **Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
5. **Align.** To adjust specified variable elements of an item to bring about optimum or desired performance.
6. **Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
7. **Remove/Install.** To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
8. **Paint (ammunition only).** To prepare and spray color coats of paint so that the ammunition can be identified and protected. The color indicating primary use is applied, preferably, to the entire exterior surface as the background color of the item. Other markings are to be repainted as original so as to retain proper ammunition identification.
9. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.
10. **Repair.** The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services. Inspect, test, service, adjust, align, calibrate, and/or replace.

MAINTENANCE ALLOCATION CHART (MAC) – CONTINUED

Fault location/troubleshooting. The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Disassembly/assembly. The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

Actions. Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

11. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
12. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

Explanation of Columns in the MAC

Column (1) Group Number. Column (1) lists Functional Group Code (FGC) numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

Column (2) Component/Assembly. Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

Column (3) Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions refer to "Maintenance Functions" outlined above).

Column (4) Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as manhours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

Field:

C Crew maintenance

F Maintainer maintenance

Sustainment:

L Specialized Repair Activity (SRA)

H Below depot maintenance

D Depot maintenance

MAINTENANCE ALLOCATION CHART (MAC) – CONTINUED**NOTE**

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by work time figure in the "H" column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) - Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) - Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) - Nomenclature. Name or identification of the tool or test equipment.

Column (4) - National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) - Tool Number. The manufacturer's part number.

Explanation of Columns in the Remarks

Column (1) - Remarks Code. The code recorded in column (6) of the MAC.

Column (2) - Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

END OF WORK PACKAGE

STANDARD TWO-LEVEL MAC

Table 1. 3kW TACTICAL QUIET GENERATOR SETS MEP-831A (60 Hz) AND MEP-832A (400 Hz).

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT			
			CREW (C)	MAINTAINER (F)	BELOW DEPOT (H)	DEPOT (D)		
00	GENERATOR SET	Inspect	0.5					A
		Inspect		0.5				A
		Test		5.7				
		Service		0.5			5	A, D
		Remove/Install		2.0			2, 3, 5	
		Replace		2.0			2, 3, 5	
		Repair		2.0				C, F, I
01	ENGINE ASSEMBLY, DIESEL	Inspect	0.1					A
		Inspect		0.1				A
		Service		0.5			3	A, D, F
		Remove/Install		2.0				F
		Replace		2.0				F
		Repair			2.0			F, I
0101	GOVERNOR CONTROL MODULE	Inspect	0.2					A
		Inspect		0.2				A
		Test		0.2				C
		Remove/Install		1.0			3, 5	
		Replace		1.0			3, 5	
010101	GOVERNOR ACTUATOR ASSEMBLY	Inspect	0.2					A
		Inspect		0.2				A
		Test		0.2				
		Adjust		0.5			3, 5	
		Remove/Install		0.7			3, 5	C, E
		Replace		0.7			3, 5	C, E
0102	ENGINE WIRING HAR- NESS	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	

**Table 1. 3kW TACTICAL QUIET GENERATOR SETS
MEP-831A (60 Hz) AND MEP-832A (400 Hz). – Continued**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT			
			CREW (C)	MAINTAINER (F)	BELOW DEPOT (H)	DEPOT (D)		
02	PERMANENT MAGNET ALTERNATOR (PMA)	Inspect	0.1					A
		Inspect		0.1				A
		Test		0.4			1, 2, 4	E
		Test		1.0			1, 2, 4	E
		Remove/Install		2.0			2, 3, 5	
		Replace		2.0			2, 3, 5	
03	ELECTRI- CAL SYSTEM ASSEMBLY	Inspect	0.3					A
		Inspect		0.3				A
		Repair		1.0			2, 3	E
0301	BATTERY CHARGING REGULATOR	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		0.5			2, 3, 5	
		Replace		0.5			2, 3, 5	
0302	BATTERY	Inspect	0.1					A
		Inspect		0.1				A
		Test		0.1			4	
		Service		0.5			3, 4	
		Remove/Install		0.5			5	
		Replace		0.5			5	
0303	BATTERY CABLES	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		0.3			3, 5	
		Service		0.5			3, 5	
		Replace		0.3			3, 5	
0304	CONTACTOR ASSY	Inspect	0.3					A
		Inspect		0.3				A
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0305	FREQUENCY CONVERTER (A8)	Inspect	0.2					A

**Table 1. 3kW TACTICAL QUIET GENERATOR SETS
MEP-831A (60 Hz) AND MEP-832A (400 Hz). – Continued**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT			
			CREW (C)	MAINTAINER (F)	BELOW DEPOT (H)	DEPOT (D)		
		Inspect Test Remove/Install Replace		0.2 0.2 1.5 1.5			1 2, 3, 5 2, 3, 5	A B I
0306	RELAYS, ELECTRO- MAGNETIC	Inspect Inspect Remove/Install Replace	0.3	 0.3 0.5 0.5			 3, 5 3, 5	A A
04	CONTROL BOX ASSEM- BLY	Inspect Inspect Test Remove/Install Replace	0.7	 0.7 0.5 0.3 0.3			 1 3, 5 3, 5	A A C
0401	CONTROL BOX TERMI- NALS	Inspect Inspect Remove/Install Replace	0.3	 0.3 0.5 0.5			 3, 5 3, 5	A A
0402	RECEPTA- CLE, FILTERS, TERMINALS, AND VOLTAGE RESISTORS	Inspect Inspect Remove/Install Replace	0.2	 0.2 0.5 0.5			 3, 5 3, 5	A A
0403	CONTROL PANEL, METERS, GAUGES, AND SWITCHES	Inspect Inspect Test Remove/Install Replace	0.2	 0.2 0.5 0.5 0.5			 1 3, 5 3, 5	A A B, C

**Table 1. 3kW TACTICAL QUIET GENERATOR SETS
MEP-831A (60 Hz) AND MEP-832A (400 Hz). – Continued**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT			
			CREW (C)	MAINTAINER (F)	BELOW DEPOT (H)	DEPOT (D)		
0404	CONTROL BOX WIRING HARNESS	Inspect	0.2					A
		Inspect		0.2				A
		Test		0.2			1	
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
05	COOLING SYSTEM	Inspect	0.2					
		Inspect		0.2				
		Test		0.2			1	C
0501	COOLING FAN ASSEMBLY	Inspect	0.2					A
		Inspect		0.2				A
		Test		0.3			1	C, G
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0502	HI/LO TEM- PERATURE SWITCHES	Inspect	0.1					A
		Inspect		0.1				A
		Test		0.3			1	C
		Remove/Install		0.3			3, 5	
		Replace		0.3			3, 5	
06	FUEL SYSTEM ASSEMBLY	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		1.5			2, 3, 5	
		Replace		1.5			2, 3, 5	
0601	FUEL TANK STRAINER ASSEMBLY	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		2.0			2, 3, 5	
		Replace		2.0			2, 3, 5	
0602	FUEL TANK	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		2.0			2, 3, 5	
		Replace		2.0			2, 3, 5	

**Table 1. 3kW TACTICAL QUIET GENERATOR SETS
MEP-831A (60 Hz) AND MEP-832A (400 Hz). – Continued**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT			
			CREW (C)	MAINTAINER (F)	BELOW DEPOT (H)	DEPOT (D)		
0603	FUEL-LEVEL ASSEMBLY	Inspect	0.1					A
		Inspect		0.1				A
		Test		0.5			1, 3, 5	
		Remove/Install		0.5			2, 3, 5	
		Replace		0.5			2, 3, 5	
0604	FUEL-LEVEL SWITCH	Inspect	0.1					A
		Inspect		0.1				A
		Test		0.5			1, 2, 3, 5	C
		Remove/Install		0.5			2, 3, 5	
		Replace		0.5			2, 3, 5	
0605	FUEL TANK PICKUP TUBE	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		0.5			2, 3, 5	
		Replace		0.5			2, 3, 5	
0606	PRIMARY FUEL PUMP	Inspect	0.1					A
		Inspect		0.1				A
		Test		0.5			1	C
		Remove/Install		0.5			2, 3, 5	
		Replace		0.5			2, 3, 5	
0607	AUXILIARY FUEL PUMP	Inspect	0.2					A
		Inspect		0.2				A
		Test		0.5			3, 5	
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0608	FUEL FIL- TER-WATER SEPARATOR	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0609	AIR CLEANER ASSEMBLY	Inspect	0.1					
		Remove/Install	0.5					A

**Table 1. 3kW TACTICAL QUIET GENERATOR SETS
MEP-831A (60 Hz) AND MEP-832A (400 Hz). – Continued**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT			
			CREW (C)	MAINTAINER (F)	BELOW DEPOT (H)	DEPOT (D)		
		Replace	0.5					
07	FRAME AND HOUSING ASSEMBLY	Inspect	0.2					A
		Inspect		0.2				A
0701	MAIN ACCESS COVER	Inspect	0.2					A
		Inspect		0.2				A
		Test		0.5				
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0702	FRAME AND HOUSING PANELS	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		1.0			3, 5	
		Replace		1.0			3, 5	
0703	FRAME AND LIFTING HAN- DLES, LIFTING RINGS	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		1.5			3, 5	
		Replace		1.5			3, 5	
0704	NATO SLAVE RECEPTACLE	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0705	SKID BASE	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
		Overhaul						
0706	ID PLATES	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		0.2			2	
		Replace		0.2			2	

**Table 1. 3kW TACTICAL QUIET GENERATOR SETS
MEP-831A (60 Hz) AND MEP-832A (400 Hz). – Continued**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT			
			CREW (C)	MAINTAINER (F)	BELOW DEPOT (H)	DEPOT (D)		
08	LUBRICATION SYSTEM	Inspect	0.2					A
		Inspect		0.2				A
		Service		0.5				D
0801	OIL DRAIN ASSEMBLY	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0802	OIL PRES- SURE SWITCH	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0803	ENGINE OIL TEMPERA- TURE SWITCH	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		0.5			3, 5	
		Replace		0.5			3, 5	
0804	OIL FILTER	Inspect	0.1					A
		Inspect		0.1				A
		Remove/Install		0.2				
		Replace		0.2				
09	EXHAUST SYSTEM ASSEMBLY	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		1.2			3, 5	
		Replace		1.2			3, 5	
0901	MUFFLER ASSEMBLY	Inspect	0.2					A
		Inspect		0.2				A
		Remove/Install		0.2			3, 5	
		Replace		0.2			3, 5	
0902	BELLOWS ASSEMBLY	Inspect	0.2					A
		Inspect		0.2				A

**Table 1. 3kW TACTICAL QUIET GENERATOR SETS
MEP-831A (60 Hz) AND MEP-832A (400 Hz). – Continued**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT			
			CREW (C)	MAINTAINER (F)	BELOW DEPOT (H)	DEPOT (D)		
		Remove/Install		0.5			2, 3, 5	
		Replace		0.5			2, 3, 5	
0903	DUCT ASSEM- BLY	Inspect	0.2					A A
		Inspect		0.2				
		Remove/Install		0.5		2, 3, 5		
		Replace		0.5		2, 3, 5		

Table 2. Tools and Test Equipment for Generator Set (3 kW TQG, MEP-831A/MEP-832A).

TOOLS OR TEST EQUIPMENT	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	F	MULTIMETER	6625-01-265-6000	AN/PSM-45A
2	F	SHOP EQUIPMENT, AUTOMOTIVE MAINTENANCE AND REPAIR, FIELD MAINTENANCE, SUPPL 1, W/O POWER	4910-00-754-0705	SC4910-95-CL-A62
3	F	TOOL KIT, GENERAL MECHANIC'S	5180-01-548-7634	P/N:5180-95-B48
4	F	TESTER, BATTERY ELECTROLYTE SOLUTION	6630-00-663-4501	TS765U
5	F	STANDARD AUTOMOTIVE TOOL SET (SATS)	4910-01-490-6453	SC4910-95-A81

Table 3. Remarks for Generator Set (3 kW TQG, MEP 831A/832A).

REMARK CODE	REMARKS
A	PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).
B	TEST BY DEPRESSING SWITCH TO TEST INDICATOR LIGHTS.
C	TROUBLESHOOTING TEST/CHECK USING MULTIMETER.
D	SERVICE IN ACCORDANCE WITH LUBRICATION INSTRUCTIONS, WP 0016.
E	REPAIR IS LIMITED TO REPLACEMENT OF DAMAGED PARTS.
F	SEE TM 9-2815-257-24 FOR ENGINE REPAIR.

Table 3. Remarks for Generator Set (3 kW TQG, MEP 831A/832A). – Continued

REMARK CODE	REMARKS
G	CHECK FOR LOOSE WIRES AND CONNECTORS, AND PERFORM CONTINUITY TEST.
H	REPAIR IS LIMITED TO REPLACEMENT OF METERS, SWITCHES, AND GAUGES.
I	REPAIR BY SUSTAINMENT-LEVEL MAINTENANCE FACILITY.

END OF WORK PACKAGE

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

INTRODUCTION**Scope**

This work package lists COEI and BII for the 3 kW Tactical Quiet Generator Set (MEP-831A) and (MEP-832A) to help you inventory items for safe and efficient operation of the equipment.

General

The COEI and BII information is divided into the following lists:

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the 3 kW Tactical Quiet Generator Set (MEP-831A) and (MEP-832A). As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of the COEI are removed and separate Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the 3 kW Tactical Quiet Generator Set (MEP-831A) and (MEP-832A) in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the 3 kW Tactical Quiet Generator Set (MEP-831A) and (MEP-832A) during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the Table of Organization and Equipment (TOE) and the Modified Table of Organization and Equipment (MTOE). Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1) Illus Number. Gives you the number of the item illustrated.

Column (2), National Stock Number (NSN) and Illustration. Identifies the stock number of the items to be used for requisitioning purposes and provides an illustration of the item.

Column (3), Description, Part Number/(CAGEC). Identifies the Federal Item Name (in all capital letters) followed by a minimum description when needed. The stowage location of the COEI and BII is also included in this column. The last line below the description is the Part Number and Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (4) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (5) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) Qty Rqr. Indicates the quantity required.

Table 1. Component of End Items (COEI) List.

(1)	(2)	(3)	(4)	(5)	(6)
ILLUS NUMBER	NATIONAL STOCK NUMBER (NSN)	DESCRIPTION, PART NUMBER/(CAGEC)	USABLE ON CODE	U/I	QTY RQR
		GENERATOR SET 3 KW, 60 HZ, TACTICAL QUIET	LQQ		-
		GENERATOR SET 3 KW, 400 HZ, TACTICAL QUIET	LQR		-

Table 1. Component of End Items (COEI) List. – Continued

(1)	(2)	(3)	(4)	(5)	(6)
ILLUS NUMBER	NATIONAL STOCK NUMBER (NSN)	DESCRIPTION, PART NUMBER/(CAGEC)	USABLE ON CODE	U/I	QTY RQR
		GENERATOR SET ASSEM 60 HZ	LQQ		-
ON BOARD SPARES					
WP 0024, FIG 1	6130-01-476-9148	BATTERY CHARGING REGULATOR (A9)		EA	1
WP 0027, FIG 1	6110-01-477-1175	CONTACTOR, MAGNETIC		EA	1
WP 0027, FIG 1	6110-01-507-7938	CONTACTOR, MAGNETIC		EA	1
WP 0018, FIG 1	2815-01-465-5993	ENGINE		EA	1
WP 0074, FIG 1	2990-01-477-2195	EXHAUST SYSTEM		EA	1
WP 0037, FIG 1	6625-01-477-0634	FAULT INDICATOR MODULE		EA	1
WP 0028, FIG 1	5895-01-587-6582	FREQUENCY CONVERTER (A8)		EA	1
WP 0055, FIG 1	2910-01-477-1311	FUEL INJECTOR PUMP		EA	1
WP 0059, FIG 1	2910-01-517-8606	FUEL PUMP, AUXILIARY		EA	1
WP 0058, FIG 1	2910-01-477-0840	FUEL PUMP, PRIMARY		EA	1
FIG 0022, FIG 4	2920-01-477-1320	GOVERNOR ACTUATOR		EA	1
WP 0019, FIG 2	2990-01-477-1371	GOVERNOR SPEED CONTROL MODULE		EA	1

Table 1. Component of End Items (COEI) List. – Continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
WP 0022, FIG 1	6115-01-476-8607	PERMANENT MAGNET ALTERNATOR (PMA)		EA	1

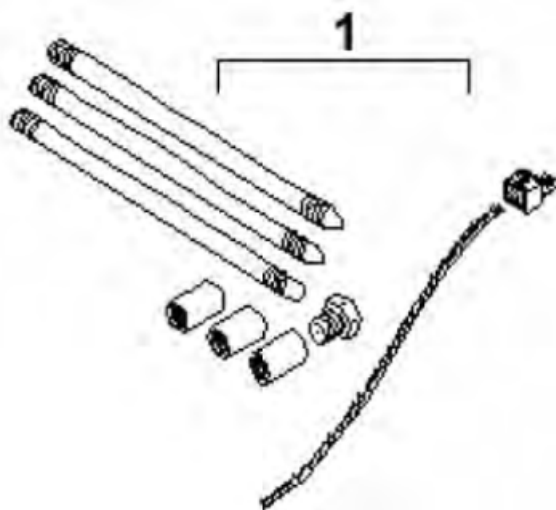


Figure 1. Basic Issue Items (Ground Rod).

Table 2. Basic Issue Items (BII).

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
1	5975-00-878-3791	ROD, GROUND 00245260 (49956)		EA	1
-		TECHNICAL MANUAL, TM 9-6115-639-13-P		EA	1

END OF WORK PACKAGE

ADDITIONAL AUTHORIZATION LIST (AAL)

INTRODUCTION**Scope**

This work package lists additional items you are authorized for the support of the 3 kW Tactical Quiet Generator Set (MEP-831A) and (MEP-832A).

General

This list identifies items that do not have to accompany the 3 kW Tactical Quiet Generator Set and that do not have to be turned in with it. These items are all authorized to you by Common Table of Allowances (CTA), Modified Table of Organization and Equipment (MTOE), Table of Distribution Allowances (TDA), or Joint Table of Allowances (JTA).

Explanation of Entries in the AAL

Column (1) National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (3) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (4) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) Qty Recm. Indicates the quantity recommended.

Table 1. Additional Authorization List.

(1) NATIONAL STOCK NUMBER (NSN)	(2) DESCRIPTION, PART NUMBER/(CAGEC)	(3) USABLE ON CODE	(4) U/I	(5) QTY RECM
2910-00-066-1235	ADAPTER, CONTAINER 13211E7541 (06076)		EA	1
7240-01-337-5269	CAN, GASOLINE, MILITARY 10502788 (56161)		EA	1
5999-00-186-3912	CLAMP, ELECTRICAL 70-801074 (04655)		EA	1
5975-00-794-2523	COUPLINGS, GROUND ROD (3 IN SET) GRC 58 (06VU6)		EA	1
5975-00-924-9927	DRIVE/HEAD STUD GRB 58 (73616)		EA	1
4210-00-270-4512	EXTINGUISHER, FIRE, CARBON DIOXIDE F5COV (02788)		EA	1
5940-00-271-9504	GROUND TERMINAL LUG CBA 70 (01667)		EA	1
5120-00-251-4489	HAMMER, HAND, 8 LBS		EA	-
4720-00-021-3320	HOSE ASSEMBLY, AUXILIARY FUEL FA1493FFF3000 (30554)		EA	1

Table 1. Additional Authorization List. – Continued

(1) NATIONAL STOCK NUMBER (NSN)	(2) DESCRIPTION, PART NUMBER/(CAGEC)	(3) USABLE ON CODE	(4) U/I	(5) QTY RECM
5120-01-013-1676	SLIDE HAMMER, GROUND P74-144 (45225)		EA	1
7240-00-177-6154	SPOUT, CAN, FLEXIBLE 11677020 (19207)		EA	1
6145-00-395-8799	WIRE, ELECTRICAL NO. 6 AWG, 7 STRANDS, CLASS B, TEMPER, 6 FT LONG AA59551-C06B1T (58536)		FT	1

END OF WORK PACKAGE

EXPENDABLE AND DURABLE ITEMS LIST

INTRODUCTION**Scope**

This work package lists expendable and durable items that you will need to operate and maintain the (enter equipment/end item name). This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), CTA 50-909, Field and Garrison Furnishings and Equipment or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) Item No. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (WP 0098, item 5)).

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item (include as applicable: C = Crew, O = AMC, F = Maintainer or ASB, H = BelowDepot or TASMG, D = Depot).

Column (3) National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) Item Name, Description, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (5) U/I. Unit of Issue (U/I) code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/(CAGEC)	(5) U/I
1	F	8040-00-117-8510	ADHESIVE RTF 3145 (5D028)	OZ
2	F	5320-00-932-1972	BLIND RIVETS	QTY
3	F	6850-01-244-3207	CLEANING COMPOUND SOLVENT 134-HI-SOLV, 55 GAL (59557)	GAL
3	F	6850-01-474-2316	CLEANING COMPOUND SOLVENT BREAKTHROUGH, 55 GAL (0K209)	GAL
3	F	6850-01-277-0595	CLEANING COMPOUND SOLVENT 134-HI-SOLV, 5 GAL (59557)	GAL
4	F	7920-01-338-3329	CLOTH, CLEANING	BG
5	F	8040-01-250-3969	COMPOUND, LOCKING 95-8163	BT
6	F	2940-01-365-6535	FILTER BODY FLUID (FUEL) 479735 (72850)	EA

Table 1. Expendable and Durable Items List. – Continued

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/(CAGEC)	(5) U/I
7	F	2940-01-310-4495	FILTER ELEMENT (AIR) 114250-12580 (54163)	EA
8	F	2940-01-545-0012	FILTER FLUID, OIL 114299-35110 (0AK42)	EA
9	F	9150-00-663-1770	GREASE, GENERAL PURPOSE (630AA)	OZ
10	F	9150-00-402-2372	OIL, ENGINE MIL-L-46167 OEA	QT
11	F	9150-00-491-7197	OIL, ENGINE MIL-L-2104 OE/HDO-15/40	QT
12	F	9150-00-189-6727	OIL, ENGINE MIL-L-2104, OE/HDO-10	QT
13	F	9150-01-092-3205	OIL, ENGINE MIL-L-2104 OE/HDO-30	QT
14	F	9150-01-433-7970	OIL, ENGINE MIL-L-2104 OE/HDO-40	QT
15	F	6850-01-160-3868	OIL, INHIBITOR, CORROSION	QT
16	F	9150-00-111-2011	OIL, LUBRICATING, ENGINE, PE 30 MIL-L-21260	QT
17	F	5331-01-326-9017	OIL, LUBRICATING, ENGINE, PE 30 MIL-L-21260	QT
18	F	8010-01-340-5175	PAINT, CARC, COLOR BLACK NO. 37038 MIL-C-46168	GL
19	F	8010-01-229-7547	PAINT, CARC, COLOR GREEN 383, NO. 34094 MIL-C-46168	GL
20	F	8040-01-544-6228	SEALANT RTV 108 88-20571-2 (30554)	OZ
21	F		SEALANT THREAD, PERMATEX 70-1536	OZ
22	F		SEALANT, THREAD, PIPE, LOCTITE 565 98-19700 (30554)	EA

Table 1. Expendable and Durable Items List. – Continued

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/(CAGEC)	(5) U/I
23	F	8030-01-025-1692	SEALING COMPOUND ADHESIVE LOCTITE 242	OZ
24	F	3439-00-974-1873	SOLDER TIN ALLOY	SL
25	F	7510-00-836-0810	TAPE PRESSURE SENSITIVE ADHESIVE PPT-T-60	RL
26	F		TUBING HEAT SHRINK	IN
27	F	6810-00-107-1510	WATER DISTILLED	DR

END OF WORK PACKAGE

MANDATORY REPLACEMENT PARTS

MANDATORY REPLACEMENT PARTS

This work package lists all mandatory replacement parts referenced in the maintenance procedures in this manual. These are items that must be replaced during maintenance whether they have failed or not. This includes items based on usage intervals such as time and operating hours.

Table 1. Mandatory Replacement Parts List.

ITEM NO.	PART NUMBER/ (CAGEC)	NATIONAL STOCK NUMBER (NSN)	NOMENCLATURE	QTY
1	H1104	5975-00-727-5153	STRAP, TIEDOWN, ELECTRIC	1
2	MS3367-5-9	5975-00-111-3208	STRAP, TIEDOWN, ELECTRIC	1
3	MS51844-23	4030-01-114-3894	SWAGING SLEEVE, WIRE	2
4	PLT 2S	5975-01-128-0390	GASKET, CYLINDER HEAD (JTACS)	1

END OF WORK PACKAGE

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA					Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).		DATE 21 Nov 2011
TO: (Forward to proponent of publication or form) (Include ZIP Code) Commander, U.S. Army Communications-Electronics Command, 6001 Combat Drive, ATTN: AMSEL-LCL-ECM, Aberdeen Proving Ground, MD 21005-1846					FROM: (Activity and location) (Include ZIP Code) Jane Q. Doe, SFC 1234 Any Street Anytown, AL 34565		
PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER TM 11-1234-567-14				DATE 15 Jan 2011		TITLE Operator, Field and Sustainment Support Maintenance Manual for Radio, AN/ABC-123	
ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON	
1	WP0005 PG 3		2			Test or Corrective Action... should identify a different WP number.	
TYPED NAME, GRADE OR TITLE Jane Q. Doe, SFC				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION 123-4567		SIGNATURE	

TO: (Forward to proponent of publication or form) (Include ZIP Code)				FROM: (Activity and location) (Include ZIP Code)			DATE	
PART II- REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS								
PUBLICATION/FORM NUMBER				DATE			TITLE	
PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
EXAMPLE								
PART III - REMARKS (Use space for remarks, comments, recommendations, or suggestions for improvement of publications and blank sheets may be used if more space is needed.)								
EXAMPLE								
TYPED NAME, GRADE OR TITLE			TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION			SIGNATURE		

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: (Forward to proponent of publication or form) (Include ZIP Code)						FROM: (Activity and location) (Include ZIP Code)	
PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER				DATE		TITLE	
ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON	
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE	

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: (Forward to proponent of publication or form) (Include ZIP Code)						FROM: (Activity and location) (Include ZIP Code)	
PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER				DATE		TITLE	
ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON	
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE	

TO: <i>(Forward to proponent of publication or form) (Include ZIP Code)</i>				FROM: <i>(Activity and location) (Include ZIP Code)</i>			DATE	
PART II- REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS								
PUBLICATION/FORM NUMBER			DATE		TITLE			
PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
PART III - REMARKS <i>(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)</i>								
TYPED NAME, GRADE OR TITLE			TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION			SIGNATURE		

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: (Forward to proponent of publication or form) (Include ZIP Code)						FROM: (Activity and location) (Include ZIP Code)	
PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER				DATE		TITLE	
ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON	
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE	

TO: <i>(Forward to proponent of publication or form) (Include ZIP Code)</i>				FROM: <i>(Activity and location) (Include ZIP Code)</i>			DATE	
PART II- REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS								
PUBLICATION/FORM NUMBER			DATE		TITLE			
PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
PART III - REMARKS <i>(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)</i>								
TYPED NAME, GRADE OR TITLE			TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION			SIGNATURE		

By Order of the Secretary of the Army:

MARK A. MILLEY
General, United States Army
Chief of Staff

Official:



GERALD B. O'KEEFE

Administrative Assistant to the
Secretary of the Army

1719251

By Order of the Secretary of the Air Force:

DAVID L. GOLDFEIN
General, United States Air Force
Chief of Staff

ELLEN M. PAWLIKOWSKJ
General, United States Air Force
Commander, AFMC

By Order of the Marine Corps:

DEBORAH OLSON
Program Manager
Engineer Systems Marine
Corps Systems Command

DISTRIBUTION:

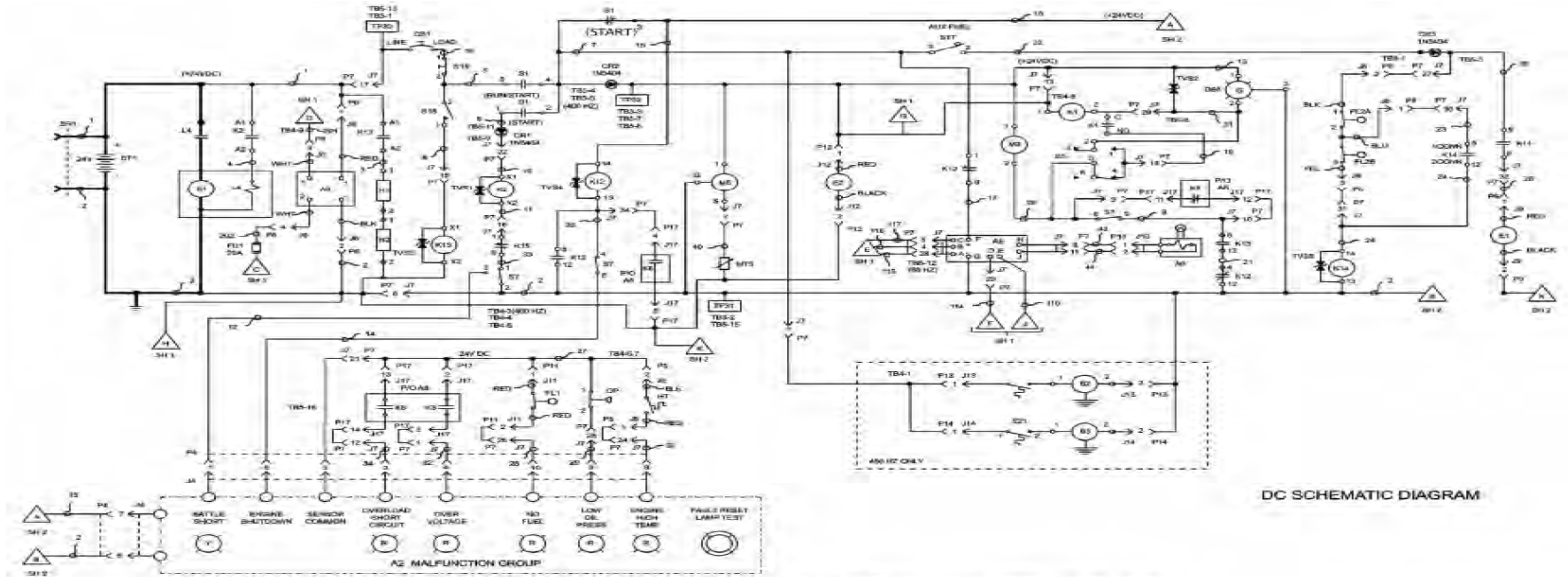
Initially published in electronic media only. When funds become available, this publication will be distributed in accordance with the initial distribution number (IDN) 256631, requirements for TM 9-6115-639-13&P.

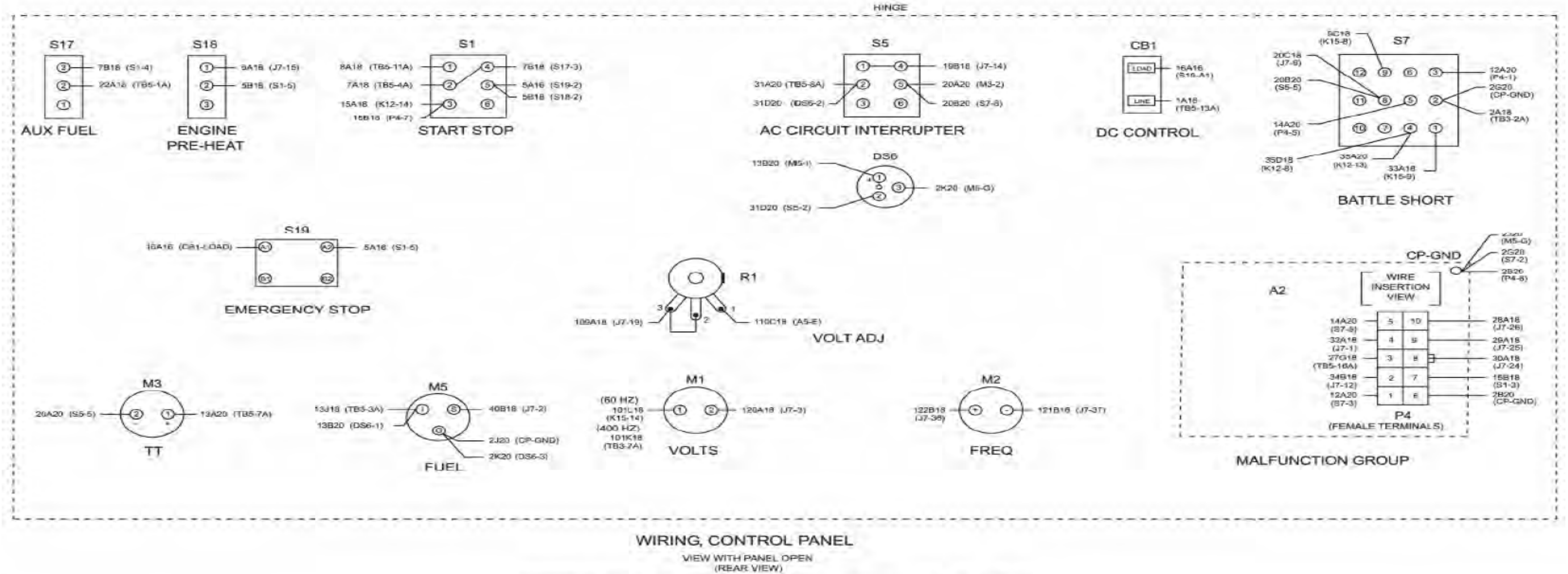
Marine Corps Distribution:

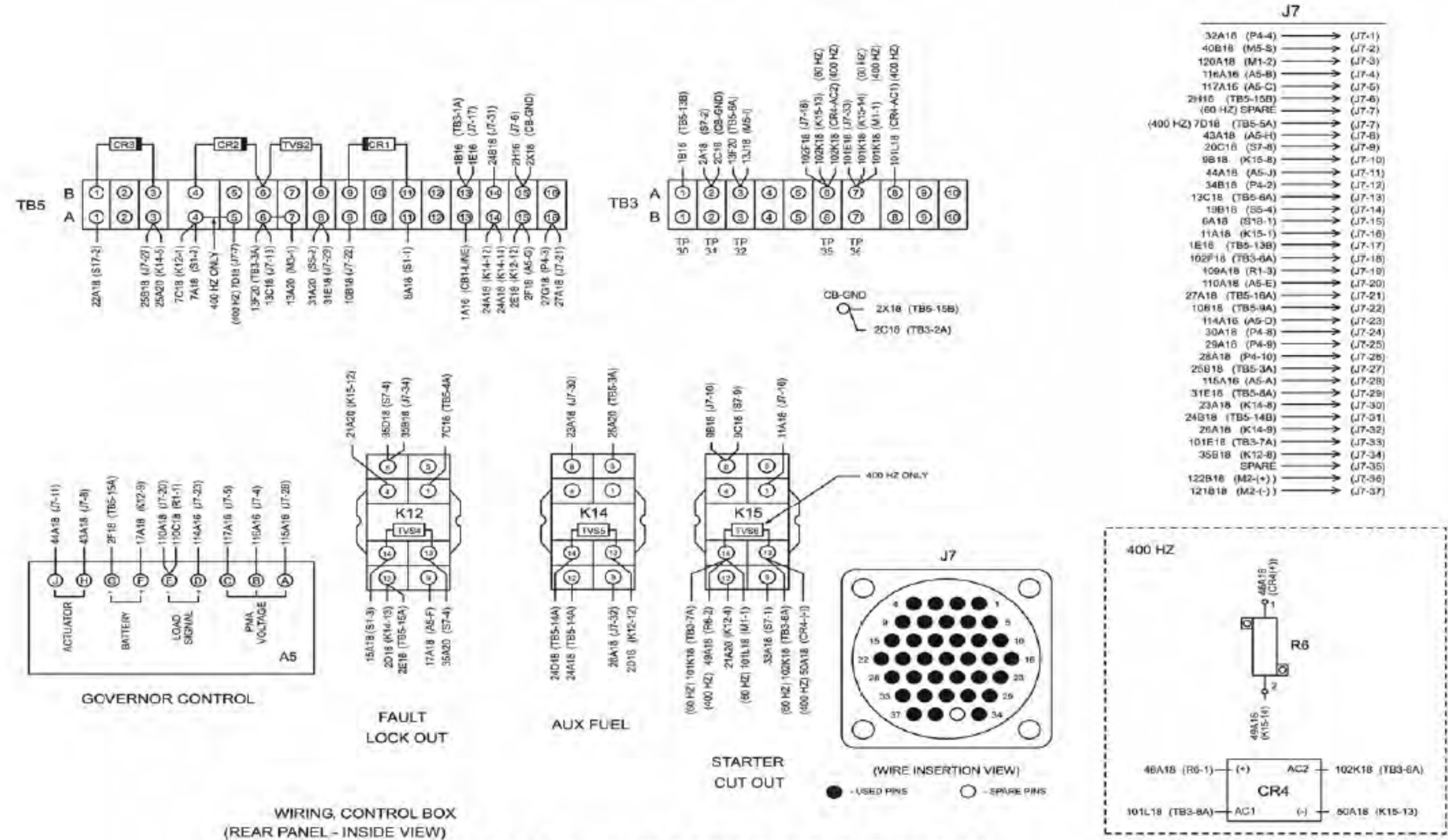
To be distributed in accordance with PCN 182 101550 00.



FP-1/2 blank

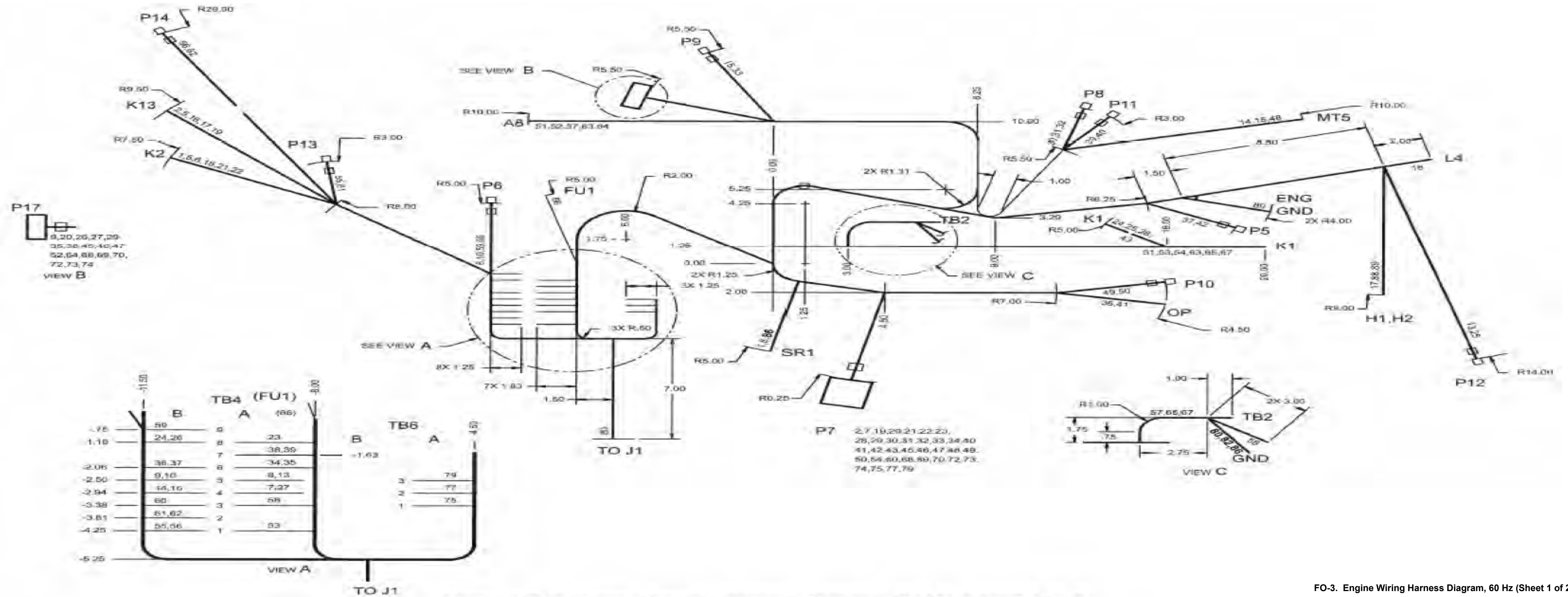












FO-3. Engine Wiring Harness Diagram, 60 Hz (Sheet 1 of 2).

WIRE LIST TABLE

WIRE REF NO	WIRE MARKING	FROM	TERMINAL FN	TO	TERMINAL FN	WIRE FN	MARKING COLOR	WIRE LENGTH
1	1C14	SR1-(+)	22	K2-A1	9	7	RED	50
2	1D16	P7-17	2	K13-A1	9	6	RED	57.5
3								
4								
5	1H14	K2-A1	9	K13-A1	9	7	RED	16
6	1J14	P6-1	15	K2-A1	9	7	RED	20.5
7	2L16	P7-6	2	TB4-4A	26	6	RED	31
8	2M14	SR1-(-)	22	TB4-5A	26	7	RED	34
9	2N18	P17-17	34	TB4-5B	27	5	RED	58
10	2P14	P6-2	15	TB4-5B	26	7	RED	8.5
11								
12								
13	2T16	P12-2	15	TB4-5A	27	5	RED	59
14	2U18	MT5-GND	13	TB4-4B	27	5	RED	54
15	2V18	P6-2	15	MT5-GND	13	5	RED	36
16	2W18	K13-X2	30	TB4-4B	27	5	RED	21.5
17	3A14	H1-1	31	K13-A2	9	7	RED	84
18	4A14	K2-A2	9	L4	21	7	RED	73
19	6B18	P7-15	2	K13-X1	30	5	RED	57.5
20	6A16	P7-10	2	P17-12	34	5	RED	46
21	10A18	P7-22	2	K2-X1	30	5	RED	55.5
22	11B18	P7-16	2	K2-X2	30	5	RED	55.5
23	13D18	P7-13	2	TB4-6A	27	5	RED	29
24	13G18	K1-1	18	TB4-6B	27	5	RED	48
25	13H18	K1-1	18	P12-1	15	5	RED	62
26	13K18	TB4-6B	27	P17-18	34	5	RED	59
27	2AB18	P17-5	34	TB4-4A	27	5	RED	50
28	19A18	P7-14	2	K1-4	18	5	RED	35
29	20D18	P7-9	2	P17-11	34	5	RED	46
30	23B18	P7-30	2	P6-1	15	5	RED	35
31	24C18	P7-31	2	P6-3	15	5	RED	35
32	25C18	P7-27	2	P6-2	15	5	RED	35
33	26B18	P7-32	2	P6-1	15	5	RED	46
34	27B18	P7-21	2	TB4-6A	27	5	RED	30
35	27C18	P17-2	34	TB4-6A	27	5	RED	49
36	27D18	OP-1	19	TB4-6B	27	5	RED	43
37	27E18	P5-2	15	TB4-6B	27	5	RED	51
38	27F18	P17-13	34	TB4-7A	27	5	RED	48.5
39	27H18	P11-1	15	TB4-7A	27	5	RED	38.5
40	28B18	P7-26	2	P11-2	15	5	RED	35
41	29B18	P7-25	2	OP-2	19	5	RED	20
42	30B18	P7-24	2	P5-1	15	5	RED	38
43	31B18	P7-29	2	K1-2	18	5	RED	35
44								
45	32B18	P7-1	2	P17-3	34	5	RED	46
46	34A18	P7-12	2	P17-14	34	5	RED	46
47	35C18	P7-34	2	P17-4	34	5	RED	46
48	40A18	P7-2	2	MT5-S	13	5	RED	44
49	43B18	P7-8	2	P10-1	15	5	RED	20
50	44B18	P7-11	2	P10-2	15	5	RED	20
51	101A10	A6-L1	20	K1-A1	8	4	BLK	56
52	101B18	A6-L1	19	P17-7	34	5	BLK	18
53	101C16	TB4-1A	26	K1-A1	9	6	BLK	40
54	101D18	P7-33	2	K1-A1	10	5	BLK	33.5
55	101G18	TB4-1B	27	P13-1	15	5	BLK	16.5
56	101H18	TB4-1B	27	P14-1	15	5	BLK	41.5

CONTINUED

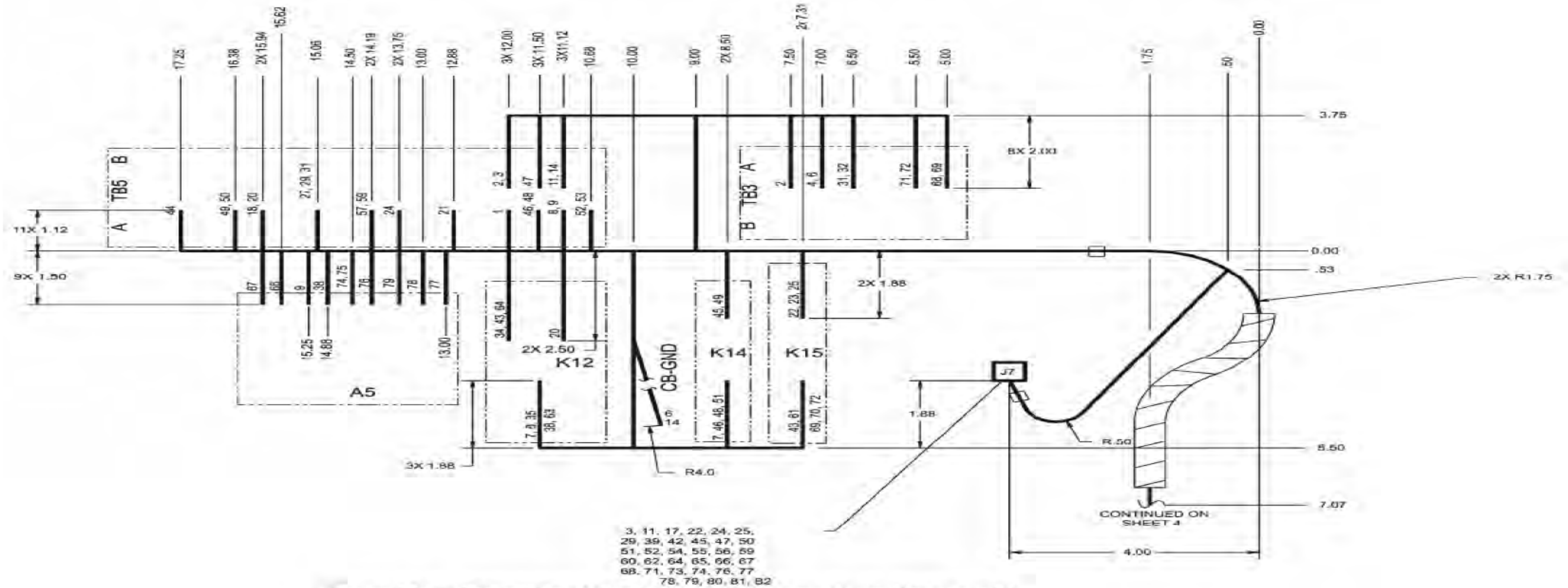
WIRE REF NO	WIRE MARKING	FROM	TERMINAL FN	TO	TERMINAL FN	WIRE FN	MARKING COLOR	WIRE LENGTH
57	102A10	TB2-N	8	A6-N	20	4	BLK	43
58	102B16	TB4-3A	26	TB2-N	9	6	BLK	27.5
59	201A16	P6-3	15	TB4-9B	26	6	BLK	7.0
60	102E18	P7-18	2	TB4-3B	27	5	BLK	38
61	102M18	TB4-2B	27	P13-2	15	5	BLK	16
62	102N18	TB4-2B	27	P14-2	15	5	BLK	41
63	103A10	A6-L2	20	K1-B1	8	4	BLK	56
64	103B18	A6-L2	19	P17-9	34	5	BLK	15.5
65	105A10	TB2-L1	8	K1-A2	8	4	BLK	22
66	202A16	P6-4	15	FU1-1	12	6	BLK	21.5
67	106A10	TB2-L2	8	K1-B2	8	4	BLK	22
68	122A18	P7-36	2	P17-16	34	5	BLK	46
69	109B18	P7-19	2	P17-19	34	5	BLK	46
70	110B18	P7-20	2	P17-8	34	5	BLK	46
71								
72	120B18	P7-3	2	P17-20	34	5	BLK	46
73	121A18	P7-37	2	P17-15	34	5	BLK	46
74	114B18	P7-23	2	P17-1	34	5	BLK	46
75	115B16	P7-28	2	TB6-1A	26	6	BLK	35
76								
77	116B16	P7-4	2	TB6-2A	26	6	BLK	38.5
78								
79	117B16	P7-5	2	TB6-3A	26	6	BLK	39
80	113A14	J1-3	32	GND	9	7	BLK	37
81								
82								
83								
84								
85								
86		SR1-(-)	23	GND	8	4		5
87								
88		H1-2	31	H2-2	31	7		2
89	2AA14	H2-1	31	B1-GND	31	7	BLK	21

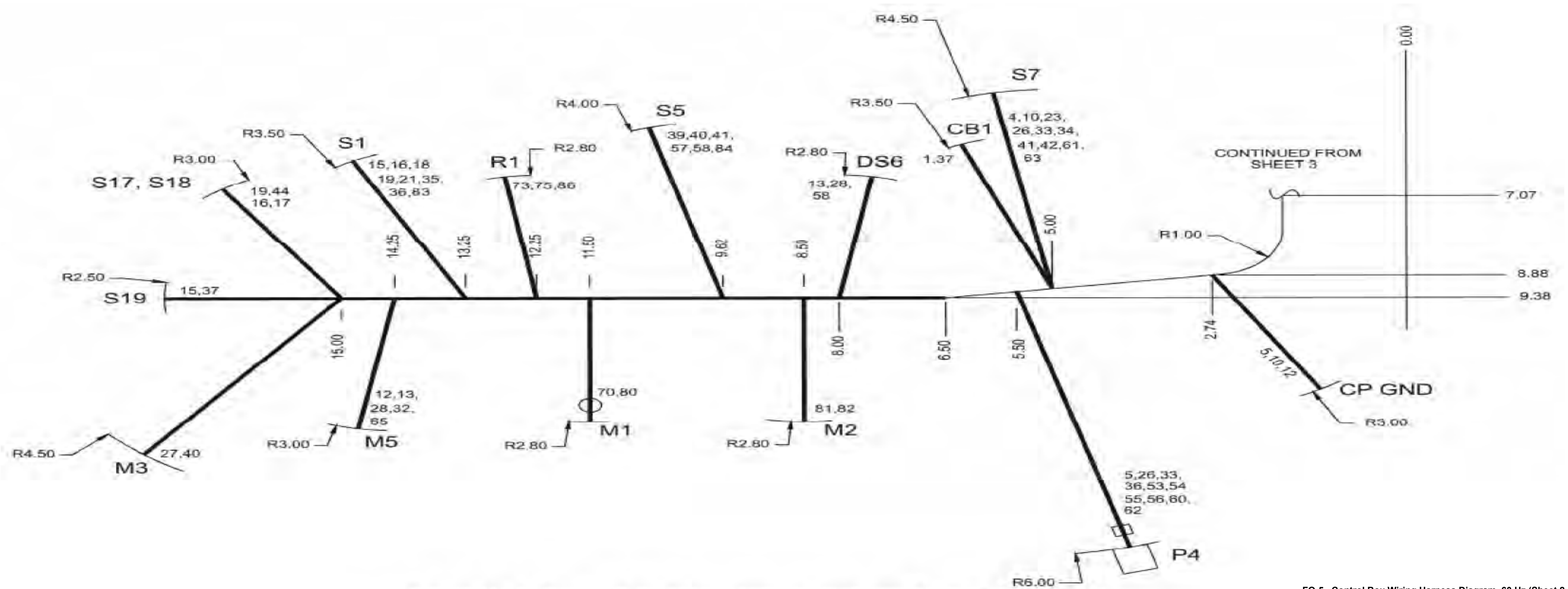
WIRE LIST TABLE

WIRE REF NO	WIRE MARKING	FROM	TERMINAL FN	I/O	TERMINAL FN	WIRE FN	MARKING COLOR	WIRE LENGTH
1	1C14	SR1-(+)	22	K2-A1	9	7	RED	50
2	1D18	P7-17	2	K13-A1	9	6	RED	57.5
3								
4								
5	1H14	K2-A1	9	K13-A1	9	7	RED	16
6	1J14	P6-1	15	K2-A1	9	7	RED	20.5
7	2L16	P7-6	2	TB4-4A	26	6	RED	31
8	2M14	SR1-(-)	22	TB4-5A	26	7	RED	34
9	2N18	P17-17	34	TB4-5B	27	5	RED	58
10	2P14	P6-2	15	TB4-5B	28	7	RED	8.5
11								
12								
13	2T18	P12-2	15	TB4-5A	27	5	RED	59
14	2U18	MT5-GND	13	TB4-4B	27	5	RED	54
15	2V18	P9-2	15	MTG-GND	13	5	RED	36
16	2W18	K13-X2	30	TB4-4B	27	5	RED	21.5
17	2Y18	TB4-3B	27	P13-2	15	5	RED	15.5
18	2Z18	TB4-3B	27	P14-2	15	5	RED	40.5
19	3A14	H1-1	31	K13-A2	9	7	RED	84
20	4A14	K2-A2	9	L4	21	7	RED	73
21	6B18	P7-15	2	K13-X1	30	5	RED	57.5
22	7D18	P7-7	2	TB4-1A	27	5	RED	32.5
23	7E18	TB4-1B	27	P13-1	15	5	RED	16.5
24	7F18	TB4-1B	27	P14-1	15	5	RED	41.5
25	8A18	P7-10	2	P17-12	34	5	RED	46
26	10A18	P7-22	2	K2-X1	30	5	RED	55.5
27	11B18	P7-16	2	K2-X2	30	5	RED	55.5
28	13D18	P7-13	2	TB4-8A	27	5	RED	29
29	13G18	K1-1	18	TB4-8B	27	5	RED	48
30	13H18	K1-1	18	P12-1	15	5	RED	62
31	13K18	TB4-8B	27	P17-18	34	5	RED	59
32								
33	19A18	P7-14	2	K1-ND4	18	5	RED	35
34	20D18	P7-9	2	P17-11	34	5	RED	46
35	23B18	P7-30	2	P8-1	15	5	RED	35
36	24C18	P7-31	2	P8-3	15	5	RED	35
37	25C18	P7-27	2	P8-2	15	5	RED	35
38	26B18	P7-32	2	P9-1	15	5	RED	46
39	27B18	P7-21	2	TB4-8A	27	5	RED	30
40	27C18	TB4-8A	27	P17-2	34	5	RED	49
41	27D18	OP-1	19	TB4-8B	27	5	RED	43
42	27E18	TB4-8B	27	P6-2	15	5	RED	51
43	27F18	TB4-7A	27	P17-13	34	5	RED	48.5
44	27H18	TB4-7A	27	P11-1	15	5	RED	38.5
45	28B18	P7-26	2	P11-2	15	5	RED	35
46	29B18	P7-25	2	OP-2	19	5	RED	20
47	30B18	P7-24	2	P6-1	15	5	RED	38
48	31B18	P7-29	2	K1-2	18	5	RED	35
49								
50	32B18	P7-1	2	P17-3	34	5	RED	46
51	34A18	P7-12	2	P17-14	34	5	RED	46
52	35C18	P7-34	2	P17-4	34	5	RED	46
53	40A18	P7-2	2	MT5-S	13	5	RED	44
54	43B18	P7-8	2	P10-1	15	5	RED	20
55	44B18	P7-11	2	P10-2	15	5	RED	20
56	101A10	A8-L1	20	K1-A1	8	4	BLK	56

CONTINUED

WIRE REF NO	WIRE MARKING	FROM	TERMINAL FN	I/O	TERMINAL FN	WIRE FN	MARKING COLOR	WIRE LENGTH
57	101B18	A8-L1	19	P17-7	34	5	BLK	15.5
58	101D18	P7-33	2	K1-A1	10	5	BLK	33.5
59	102A10	TB2-N	8	A8-N	20	4	BLK	43
60	102B16	P7-18	2	TB2-N	9	5	BLK	23.5
61								
62								
63	103A10	A8-L2	20	K1-B1	8	4	BLK	56
64	103B18	A8-L2	19	P17-9	34	5	BLK	15.5
65	105A10	TB2-L1	8	K1-A2	8	4	BLK	22
66								
67	106A10	TB2-L2	8	K1-B2	8	4	BLK	22
68								
69	109B18	P7-19	2	P17-19	34	5	BLK	46
70	110B18	P7-20	2	P17-8	34	5	BLK	46
71								
72								
73								
74	114B18	P7-23	2	P17-1	34	5	BLK	46
75	115B16	P7-28	2	TB5-1A	26	5	BLK	38
76								
77	116B16	P7-4	2	TB6-2A	26	5	BLK	38.5
78								
79	117B16	P7-5	2	TB6-3A	26	5	BLK	39
80								
81	120B18	P7-3	2	P17-20	34	5	BLK	46
82	121A18	P7-37	2	P17-15	34	5	BLK	46
83	122A18	P7-36	2	P17-16	34	5	BLK	46
84	202A16	P6-4	15	FU1-1	12	5	BLK	21.5
85	201A16	P6-3	15	TB4-9B	26	5	BLK	7.0
86		SR1-(-)	23	GND	8	4		
87								
88		H1-2	31	H2-1	31	7		
89	2AA14	H2-2	31	B1-GND	31	7	BLK	21
90	2AB18	P17-5	34	TB4-4A	27	5	RED	50





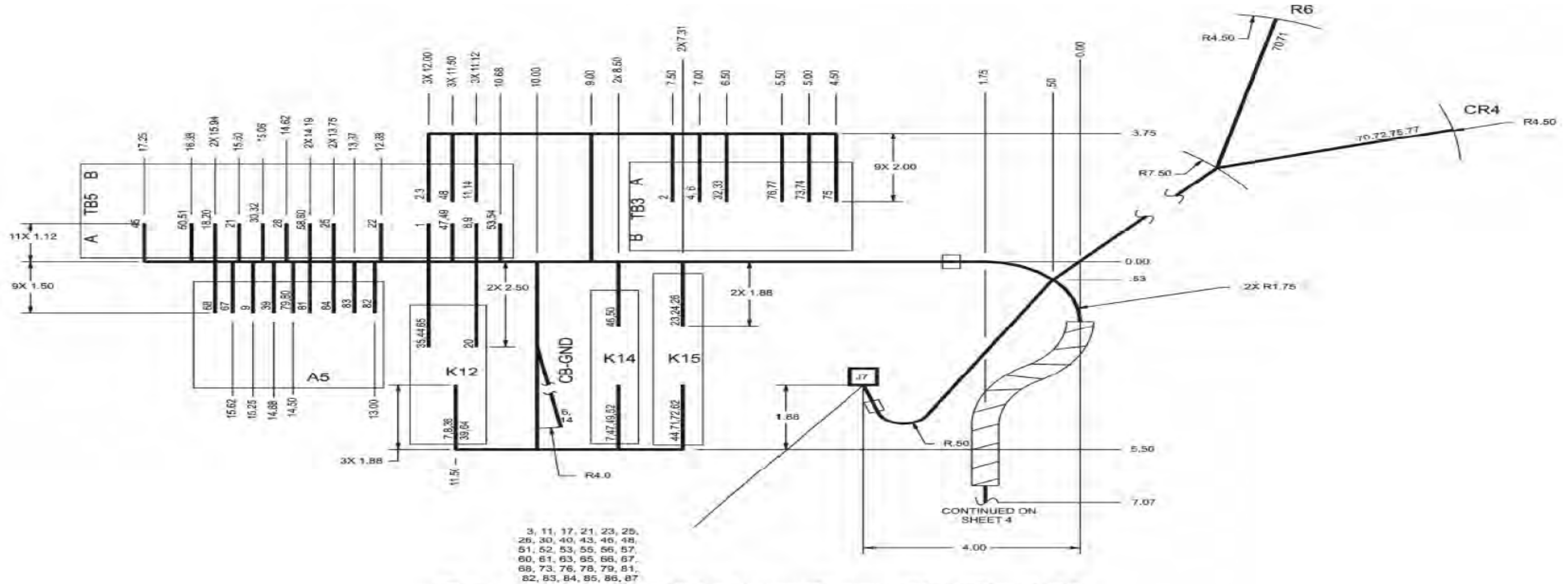
FO-5. Control Box Wiring Harness Diagram, 60 Hz (Sheet 2 of 3).

WIRE LIST TABLE

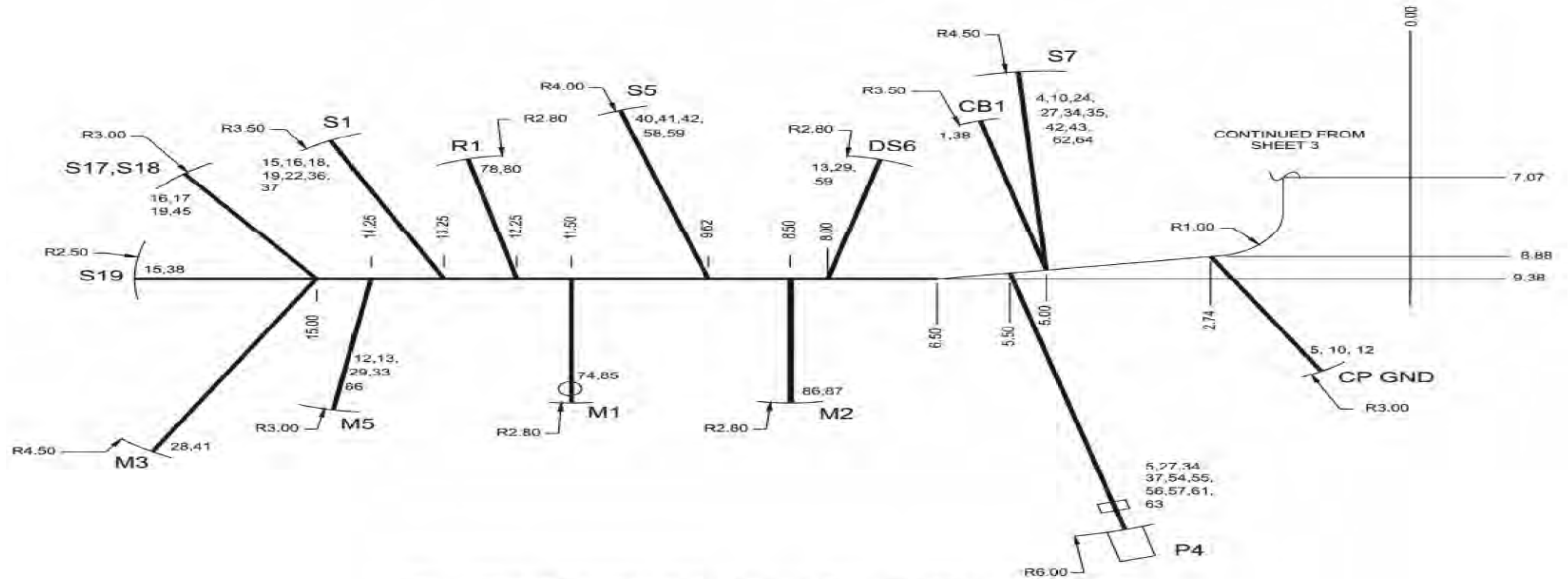
WIRE REF NO	WIRE MARKING	FROM	TERMINAL FN	TO	TERMINAL FN	WIRE FN	MARKING COLOR	WIRE LENGTH
1	1A16	TB5-13A	7	CB1-LINE	8	3	RED	26.5
2	1B16	TB5-13B	7	TB3-1A	7	3	RED	8.0
3	1E16	J7-17	2	TB5-13B	7	3	RED	23.5
4	2A18	TB3-2A	6	S7-2	6	4	RED	32.0
5	2B20	CP-GND	10	P4-6	13	5	RED	12.8
6	2C18	TB3-2A	6	CB-GND	10	4	RED	14.3
7	2D18	K14-13	6	K12-12	6	4	RED	6.0
8	2E18	K12-12	6	TB5-15A	6	4	RED	10.3
9	2F18	A5-G	6	TB5-15A	6	4	RED	6.5
10	2G20	CP-GND	10	S7-2	6	5	RED	11.0
11	2H16	J7-6	2	TB5-15B	7	3	RED	22.0
12	2J20	M5-G	10	CP-GND	10	5	RED	18.5
13	2K20	M5-G	10	DS6-3	TIN	5	RED	12.0
14	2X18	CB-GND	10	TB5-15B	6	4	RED	13.5
15	5A16	S1-5	7	S19-2	7	3	RED	11.0
16	5B18	S1-5	6	S18-2	6	4	RED	7.3
17	6A18	J7-15	2	S18-1	6	4	RED	32.0
18	7A18	S1-2	6	TB5-4A	6	4	RED	39.5
19	7B18	S1-4	6	S17-3	6	4	RED	8.5
20	7C18	K12-1	6	TB5-4A	6	4	RED	8.0
21	8A18	S1-1	6	TB5-11A	6	4	RED	37.3
22	9B18	J7-10	2	K15-8	6	4	RED	15.5
23	9C18	S7-9	6	K15-8	6	4	RED	24.8
24	10B18	J7-22	2	TB5-9A	6	4	RED	20.5
25	11A18	J7-16	2	K15-1	6	4	RED	15.3
26	12A20	S7-3	6	P4-1	13	5	RED	10.8
27	13A20	TB5-7A	6	M3-1	9	5	RED	41.5
28	13B20	M5-1	10	DS6-1	TIN	5	RED	12.0
29	13C18	TB5-6A	6	J7-13	2	4	RED	22.0
30								
31	13F20	TB5-6A	6	TB3-3A	6	5	RED	14.3
32	13J18	TB3-3A	6	M5-1	10	4	RED	39.5
33	14A20	S7-5	6	P4-5	13	5	RED	10.5
34	35D18	K12-8	6	S7-4	6	4	RED	29.8
35	15A18	K12-14	6	S1-3	6	4	RED	40.0
36	15B18	S1-3	6	P4-7	13	4	RED	16.8
37	16A16	S19-1	7	CB1-LOAD	8	3	RED	14.5
38	17A18	K12-9	6	A5-F	6	4	RED	14.0
39	19B18	J7-14	2	S5-4	6	4	RED	28.0
40	20A20	M3-2	9	S5-5	6	5	RED	13.3
41	20B20	S5-5	6	S7-8	6	5	RED	11.8
42	20C18	S7-8	6	J7-9	2	4	RED	23.8
43	21A20	K15-12	6	K12-4	6	5	RED	13.0
44	22A18	S17-2	6	TB5-1A	6	4	RED	43.0
45	23A18	K14-8	6	J7-30	2	4	RED	16.5
46	24A18	K14-12	6	TB5-14A	6	4	RED	10.0
47	24B18	TB5-14B	6	J7-31	2	4	RED	23.0

WIRE LIST TABLE (CONTINUED)

WIRE REF NO	WIRE MARKING	FROM	TERMINAL FN	TO	TERMINAL FN	WIRE FN	MARKING COLOR	WIRE LENGTH
48	24D18	K14-14	6	TB5-14A	6	4	RED	10.3
49	25A20	TB5-3A	6	K14-5	6	5	RED	10.5
50	25B18	TB5-3A	6	J7-27	2	4	RED	24.3
51	26A18	K14-9	6	J7-32	2	4	RED	24.0
52	27A18	TB5-16A	6	J7-21	2	4	RED	18.5
53	27G18	TB5-16A	6	P4-3	13	4	RED	30.0
54	28A18	J7-26	2	P4-10	13	4	RED	26.3
55	29A18	P4-9	13	J7-25	2	4	RED	26.3
56	30A18	P4-8	13	J7-24	2	4	RED	26.3
57	31A20	TB5-8A	6	S5-2	6	5	RED	35.5
58	31D20	S5-2	6	DS6-2	TIN	5	RED	8.8
59	31E18	J7-29	2	TB5-8A	6	4	RED	21.5
60	32A18	J7-1	2	P4-4	13	4	RED	26.3
61	33A18	S7-1	6	K15-9	6	4	RED	34.5
62	34B18	J7-12	2	P4-2	13	4	RED	26.3
63	35A20	S7-4	6	K12-13	6	5	RED	33.0
64	35B18	K12-8	6	J7-34	2	4	RED	20.0
65	40B18	M5-S	10	J7-2	2	4	RED	31.5
66	43A18	A5-H	6	J7-8	2	4	RED	23.5
67	44A18	A5-J	6	J7-11	2	4	RED	24.0
68	101E18	TB3-7A	6	J7-33	2	4	BLK	24.9
69	101K18	TB3-7A	6	K15-14	6	4	BLK	19.0
70	101L18	K15-14	6	M1-1	11	4	BLK	40.0
71	102F18	J7-16	2	TB3-6A	6	4	BLK	24.5
72	102K18	TB3-6A	6	K15-13	6	4	BLK	19.0
73	109A18	R1-3	TIN	J7-19	2	4	BLK	29.0
74	110A18	A5-E	6	J7-20	2	4	BLK	22.0
75	110C18	A5-E	6	R1-1	TIN	4	BLK	37.0
76	114A16	A5-D	7	J7-23	2	3	BLK	22.0
77	115A16	A5-A	7	J7-28	2	3	BLK	20.5
78	116A16	A5-B	7	J7-4	2	3	BLK	21.0
79	117A16	A5-C	7	J7-5	2	3	BLK	21.5
80	120A18	M1-2	11	J7-3	2	4	BLK	29.0
81	121B18	J7-37	2	M2 (-)	11	4	BLK	25.3
82	122B18	J7-36	2	M2 (+)	11	4	BLK	25.3
83		S1-2	6	S1-4	6	4		4.3
84		S5-1	6	S5-4	6	4		1.3
85								
86		R1-2	TIN	R1-3	TIN	4		4.0



FO-6. Control Box Wiring Harness Diagram, 400 Hz (Sheet 1 of 3).



WIRE LIST TABLE

WIRE REF NO	WIRE MARKING	FROM	TERMINAL FN	TO	TERMINAL FN	WIRE FN	MARKING COLOR	WIRE LENGTH
1	1A16	TB5-13A	7	CB1-LINE	8	3	RED	26.5
2	1B16	TB5-13B	7	TB3-1A	7	3	RED	8.0
3	1E16	J7-17	2	TB5-13B	7	3	RED	23.5
4	2A18	TB3-2A	6	S7-2	6	4	RED	32.0
5	2B20	CP-GND	10	P4-6	13	5	RED	12.8
6	2C18	TB3-2A	6	CB-GND	10	4	RED	14.3
7	2D18	K14-13	6	K12-12	6	4	RED	6.0
8	2E18	K12-12	6	TB5-15A	6	4	RED	10.3
9	2F18	A5-G	6	TB5-15A	6	4	RED	6.5
10	2G20	CP-GND	10	S7-2	6	5	RED	11.0
11	2H16	J7-6	2	TB5-15B	7	3	RED	22.0
12	2J20	M5-G	10	CP-GND	10	5	RED	18.5
13	2K20	M5-G	10	DS6-3	TIN	5	RED	12.0
14	2X18	CB-GND	10	TB5-15B	6	4	RED	13.5
15	5A16	S1-5	7	S19-2	7	3	RED	11.0
16	5B18	S1-5	6	S18-2	6	4	RED	7.3
17	6A18	J7-15	2	S18-1	6	4	RED	32.0
18	7A18	S1-2	6	TB5-4A	6	4	RED	39.5
19	7B18	S1-4	6	S17-3	6	4	RED	8.5
20	7C18	TB5-4A	6	K12-1	6	4	RED	8.0
21	7D18	TB5-5A	6	J7-7	2	4	RED	22.0
22	8A18	S1-1	6	TB5-11A	6	4	RED	37.3
23	9B18	J7-10	2	K15-8	6	4	RED	15.5
24	9C18	S7-9	6	K15-8	6	4	RED	24.8
25	10B18	J7-22	2	TB5-9A	6	4	RED	20.5
26	11A18	J7-16	2	K15-1	6	4	RED	15.3
27	12A20	S7-3	6	P4-1	13	5	RED	10.8
28	13A20	TB5-7A	6	M3-1	9	5	RED	41.5
29	13B20	M5-I	10	DS6-1	TIN	5	RED	12.0
30	13C18	TB5-6A	6	J7-13	2	4	RED	22.0
31								
32	13F20	TB5-6A	6	TB3-3A	6	5	RED	14.3
33	13J18	TB3-3A	6	M5-I	10	4	RED	39.5
34	14A20	S7-5	6	P4-5	13	5	RED	10.5
35	35D18	K12-8	6	S7-4	6	4	RED	29.5
36	15A18	K12-14	6	S1-3	6	4	RED	40.0
37	15B18	S1-3	6	P4-7	13	4	RED	16.8
38	16A16	S19-1	7	CB1-LOAD	8	3	RED	14.5
39	17A18	K12-9	6	A5-F	6	4	RED	14.0
40	19B18	J7-14	2	S5-4	6	4	RED	28.0
41	20A20	M3-2	9	S5-5	6	5	RED	13.3
42	20B20	S5-5	6	S7-8	6	5	RED	11.8
43	20C18	S7-8	6	J7-9	2	4	RED	23.8
44	21A20	K15-12	6	K12-4	6	5	RED	13.0
45	22A18	S17-2	6	TB5-1A	6	4	RED	43.0
46	23A18	K14-8	6	J7-30	2	4	RED	16.5
47	24A18	K14-12	6	TB5-14A	6	4	RED	10.4
48	24B18	TB5-14B	6	J7-31	2	4	RED	23.0
49	24D18	K14-14	6	TB5-14A	6	4	RED	10.3

WIRE LIST TABLE (CONTINUED)

WIRE REF NO	WIRE MARKING	FROM	TERMINAL FN	TO	TERMINAL FN	WIRE FN	MARKING COLOR	WIRE LENGTH
50	25A20	TB5-3A	6	K14-5	6	5	RED	10.5
51	25B18	TB5-3A	6	J7-27	2	4	RED	24.3
52	26A18	K14-9	6	J7-32	2	4	RED	24.0
53	27A18	TB5-16A	6	J7-21	2	4	RED	18.5
54	27G18	TB5-16A	6	P4-3	13	4	RED	30.0
55	28A18	J7-26	2	P4-10	13	4	RED	26.3
56	29A18	P4-9	13	J7-25	2	4	RED	26.3
57	30A18	P4-8	13	J7-24	2	4	RED	26.3
58	31A20	TB5-8A	6	S5-2	6	5	RED	35.5
59	31D20	S5-2	6	DS6-2	TIN	5	RED	8.8
60	31E18	J7-29	2	TB5-8A	6	4	RED	21.5
61	32A18	J7-1	2	P4-4	13	4	RED	26.3
62	33A18	S7-1	6	K15-9	6	4	RED	34.5
63	34B18	J7-12	2	P4-2	13	4	RED	26.3
64	35A20	S7-4	6	K12-13	6	5	RED	33.0
65	35B18	K12-8	6	J7-34	2	4	RED	20.0
66	40B18	M5-S	10	J7-2	2	4	RED	31.5
67	43A18	A5-H	6	J7-8	2	4	RED	23.5
68	44A18	A5-J	6	J7-11	2	4	RED	24.0
69								
70	48A18	CR4-(+)	9	R6-1	TIN	4	RED	9.0
71	49A18	R6-2	TIN	K15-14	6	4	RED	32.1
72	50A18	CR4-(-)	9	K15-13	6	4	RED	32.1
73	101E18	TB3-7A	6	J7-33	2	4	BLK	24.9
74	101K18	TB3-7A	6	M1-1	11	4	BLK	38.7
75	101L18	TB3-8A	6	CR4-AC1	9	4	BLK	31.2
76	102F18	J7-18	2	TB3-6A	6	4	BLK	24.5
77	102K18	TB3-6A	6	CR4-AC2	9	4	BLK	30.2
78	109A18	R1-3	TIN	J7-19	2	4	BLK	29.0
79	110A18	A5-E	6	J7-20	2	4	BLK	22.0
80	110C18	A5-E	6	R1-1	TIN	4	BLK	37.0
81	114A16	A5-D	7	J7-23	2	3	BLK	22.0
82	115A16	A5-A	7	J7-28	2	3	BLK	20.5
83	116A16	A5-B	7	J7-4	2	3	BLK	21.0
84	117A16	A5-C	7	J7-5	2	3	BLK	21.5
85	120A18	M1-2	11	J7-3	2	4	BLK	29.0
86	121B18	J7-37	2	M2-(-)	11	4	BLK	25.3
87	122B18	J7-36	2	M2-(+)	11	4	BLK	25.3
88		S1-2	6	S1-4	6	4		4.3
89		S5-1	6	S5-4	6	4		1.3
90								
91		R1-2	TIN	R1-3	TIN	4		4.0

